The Effects of Passage of Time on Alumni Recall of 'Student Experience'

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Abstract

'Student experience' has become a popular term with higher education managers but is theoretically under-developed. This paper conceptualises student experience as a construction from memory and advances previous discussion within the higher education sector by distinguishing between recalled academic and social experience. The results of a predominantly quantitative survey of 883 alumni indicated that recalled academic experience had greater effect on subsequent loyalty attitudes and behaviours than recalled social experience. Cluster analyses indicated that alumni having strong ties with their university were more likely over time to identify with the recalled academic experience of their university, while those with weak ties were more likely to identify with recalled social experiences. Implications for development of alumni associations are made based on targeting groups with different levels of ties with the university.

Introduction

Students' loyalty to their university is a multiphase concept that stretches from enrolment to graduation and beyond. Barnard and Rensleigh (2008, p. 433) noted that 'the establishment and nurturing of mutually beneficial relations between a university and its alumni as a primary stakeholder group, should be a top priority for any higher education institution that wants to prosper and grow in a fast-changing and highly competitive market'. Numerous studies have sought to explain universities' varying success at developing alumni (Weerts *et al.*, 2010; Farrow and Yuan, 2011; Gallo, 2013).

   This paper seeks to make a contribution by investigating the links between students' recalled experience of their time as a student and their subsequent loyalty attitudes and behaviours towards their university. Some previous studies have investigated the effects of student experience on alumni giving behaviour (Clotfelter, 2003; Monks, 2003) but little research has linked experience to non-financial aspects of alumni support, such as recommending and providing access to professional networks (Newman and Petrosko, 2011).

   Although 'student experience' has become a topic of great recent interest among academics and practitioners (Fisher, 2010), definitions often remain vague or circular. For example, Gupta and Vajic (2000, p. 34) proposed that '… an experience occurs when a customer has any sensation or knowledge acquisition resulting from some level of interaction with different elements of a context created by the service provider'. Prahalad and Ramaswamy (2003, p. 14) summarised conceptual and measurement problems by noting that 'value creation is defined by the experience of the specific customer, at a specific point in time and location, in the context of a specific event'. Many discussions of experience have linked the concept to memory and changes in an individual's affective state (Jüttner *et al.*, 2013). Events of little affective value are distinguished from those that have a strong influence on affective state and are remembered long after the event (Manthiou *et al.*, 2014). In this paper, the experience of an event is defined in relation to its subsequent recall. Within the higher education sector, there is a general consensus that students' experience influences student retention (Wilcox *et al.*, 2005) and loyalty towards their institution after graduating (Pascarella and Terenzini, 1980; Sung and Yang, 2009). However, analysis of student experience remains weakly underpinned (Gibbs and Dean, 2014) and few studies have deconstructed components of students' experience. Berger and Milem (1999) distinguished between academic and social experience and noted that students' social experience was a stronger predictor of future loyalty than academic experience. In contrast, Hennig-Thurau *et al.* (2001) focused on academic experience and found perceived quality of teaching to be a key determinant of student loyalty. Mael and Ashforth (1992) found that positive academic experience led to higher support for the university but their study did not capture the effects of experience on loyalty over time.

   This study seeks to fill gaps in previous studies of student experience and contributes to knowledge about the relationships that graduates develop and sustain with their university after graduating by

distinguishing the effects of academic and social experience over time. Whilst numerous studies have investigated student alumni associations in the context of alumni giving (Bristol, 1990; Tom and Elmer, 1994; Belfield and Beney, 2000), links with specific elements of students' recalled experience remain relatively unexplored. Little research has investigated whether different components of students' recalled experience live on in memory with differential effects. This paper, therefore, responds to previous calls for further research into the dynamics of students' relationships with their university and the factors that motivate alumni to remain loyal (Kahu, 2013). To summarise, this study investigates whether it is students' recollection of their formal academic experience or their less formal social experience that has greater influence on loyalty towards their university.

Conceptual development

Academic experience, social experience and loyalty in higher education

There is now evidence that students' overall experience influences their subsequent perceptions and feelings towards their university (Liu and Jia, 2008; Newman and Petrosko, 2011), although positive experience does not necessarily imply loyal attitudes and behaviours (Blackmore *et al.*, 2006). Experience is conceptualised here as students' *recollection* of their involvement in academic and social activities while at university. While some cultures, including Confucian societies recognise the inter-relatedness of academic and social dimensions of learning in the notion of 'whole person education' (Yee, 2001), contemporary analysis of Western higher education has tended to distinguish between the two, with distinct but related causes, processes and consequences (Pascarella and Terenzini, 2005).

In this study, academic experience is the recalled *process* of learning, rather than the *outcome* of that process, manifested in a qualification. Where a student is highly motivated to achieve academic goals, there is likely to be a high level of academic involvement. The social experience of learning is arguably more complex than the more narrowly defined academic experience. A university is a social milieu where many interactions occur between students, academics, administrative professionals, peers, parents, alumni and donors (Van Der Velden, 2012), and provides opportunities for participants to interact with one another and form enduring connections (McAlexander and Koenig, 2010). Social ties derive from individuals' attendance at a university (Brown and Davis, 2001) but alumni's interaction after graduation can

increase the strength of these ties (Ellison *et al.*, 2007; Farrow and Yuan, 2011).

Social networks comprise 'strong' and 'weak ties' (Granovetter, 1982; Onyx and Bullen, 2000). Both can be found in the same networks and create a sense of belonging and community. Strong ties are defined as relationships that are developed over time through many interactions, creating a sense of social integration and a shared identity (Leonard and Onyx, 2003). Weak ties are relatively undeveloped and comprise loose connections between individuals who may provide useful information or new perspectives for one another but typically not emotional support (Granovetter, 1982).

Social ties can be very relevant to the higher education context of a high involvement, experientially rich service, typically of three years duration and usually involving memorable peak experiences of fun and challenges (Woodall *et al.*, 2012). Such transformational experiences provide opportunities for forming relationships or ties that influence behaviour (McAlexander *et al.*, 2005) and, in a higher education context, strength of ties influences alumni's attitudes and behaviours (Farrow and Yuan, 2011).

Student loyalty has mainly been conceptualised as an attitude, typically manifested by likelihood of recommending their university to others (Hennig-Thurau *et al.*, 2001). This study additionally uses behavioural intention, which incorporates activities, such as offering institutional support through guest lectures, acting as student mentors or staying in contact with academics. This distinction between attitudes and behaviour is consistent with Woodall *et al.* (2012) who suggested that both aspects of loyalty are important in the higher education context with attitudinal loyalty the motivation behind the manifestation of behavioural loyalty. Therefore, it is hypothesised that (Figure 1):

H1: A more positive recall of academic experience will lead to (a) stronger alumni attitudinal loyalty and (b) higher alumni intention to undertake behaviours that support their university.

H2: A more positive recall of social experience will lead to (a) stronger alumni attitudinal loyalty and (b) higher alumni intention to undertake behaviours that support their university.

Very little research has distinguished between the effects of recalled academic and social experience on subsequent loyalty to an educational institution. The third hypothesis thus seeks to contribute to knowledge by comparing the effects of social and academic experience.
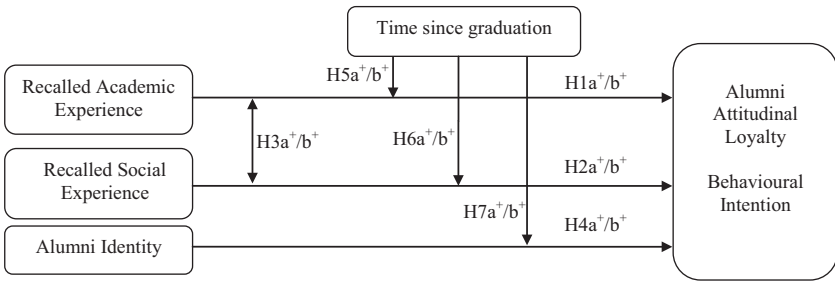
Figure 1 Conceptual framework of this study

H3: Recalled academic experience and recalled social experience have different effects on (a) alumni attitudinal loyalty and (b) alumni intention to undertake behaviours that support the university.

Identification, social ties and loyalty

The concept of social identity is well established and has been used to explain behaviour in the fields of organisational behaviour (Mael and Ashforth, 1992); group membership (Bhattacharya *et al.*, 1995); and consumers' loyalty to brands (Homburg *et al.*, 2009). Students can identify with many groups within their institution (Jungert, 2013), from the university as a generic global identifier, to specific departments, programmes, campuses, university sports and social clubs. Such memberships and social ties contribute to individuals' development of identity (Leonard and Onyx, 2003). Alumni's identification with their university influences their propensity to support it (Mael and Ashforth, 1992; Iyer *et al.*, 1997), as stronger ties between alumni and the university are consistent with higher levels of identification (Jiang and Carroll, 2009) and higher levels of loyalty (Wiertz and De Ruyter, 2007).

H4: Alumni identification with their university has a positive influence on (a) alumni attitudinal loyalty and (b) alumni intention to undertake behaviours that support the university.

Time since graduation as a moderator variable

Student experience is considered here as *retrospective recall* of an event rather than a measure recorded at the time of the reported event (Gupta and Vajic, 2000), to understand how recall of experience changes with the passage of time and, more specifically, how different components of students' recalled experience change.

One possibility is that recent graduates do not immediately appreciate the salience of their university experience and initially exhibit low loyalty behaviours. Subsequent life experiences may lead to revised evaluations as graduates look back increasingly favourably on their university experiences (Iyer *et al.*, 1997) and hence show greater levels of loyalty to it. Purcell *et al.* (2007) maintained that mature graduates tend to evaluate their higher education experience more positively, influenced by the opportunities that it has led to. This may be consistent with the extensive literature on cognitive dissonance (Festinger, 1957), suggesting that individuals tend to rationalise away perceptions of poor experience, for example, excessive assignments and poor social activities, and gradually improve their retrospective evaluation of the experience. An alternative view is that with the passage of time, alumni may downgrade their recollections of experiences that were considered good at the time, because subsequent exposure to related stimuli provides updated evaluation criteria. For example, university sports facilities that were considered good at the time may now be considered poor in comparison to facilities subsequently experienced.

McAlexander and Koenig (2001) found that the passage of time was related to alumni's likelihood of donation, although this may have also reflected alumni's increasing income as their careers developed. While this finding is intuitive, the potential role of the passage of time on non-financial loyalty behaviours and attitudes of alumni remained under-researched.

H5: The longer the time since graduation, the stronger is the effect of academic recalled experience on (a) alumni attitudinal loyalty and (b) alumni intention to undertake behaviours that support their university.

H6: The longer the time since graduation, the stronger is the impact of recalled social experience on (a) alumni attitudinal loyalty and (b) alumni intention to undertake behaviours that support their university.

With regard to the moderating effect of time on the association between recalled experience and identity, a reorientation may occur, whereby the salience of social groups based on an individual's more distant employment declines with the passage of time, while other social groups become more prominent (Spaeth and Greeley, 1970; Connolly and Blanchette, 1986). Empirical findings provide conflicting results. McAlexander and Koenig (2001) found that alumni identification with their *alma mater* can atrophy as time passes, while loyalty increases with

time. However, Iyer *et al.* (1997) demonstrated that older alumni identified more with the institution than recent alumni. A possible reason for these inconsistent findings might be that time exerts a moderating rather than direct effect. It has been suggested that focusing on direct effects may provide contradictory results, thus examining moderating effects is more meaningful (Baron and Kenny, 1986). High levels of identification and loyalty are consistent with strong ties built up over a long history of interaction (Leonard and Onyx, 2003). Hence, time is needed for identification to translate into loyal attitudes and behaviours.

H7: The longer the time since graduation, the stronger is the impact of alumni identity on (a) alumni attitudinal loyalty and (b) alumni intention to undertake behaviours that support their university.

Methodology

Procedure and sampling

The sample comprised alumni of a large middle ranking United Kingdom university, locally referred to as a 'pre-92' university. It has an alumni office, which is less well established than those of older and more traditional universities. An online survey was used and an invitation e-mail was sent by the director of the alumni association to all 12,763 registered alumni. 883 agreed to participate in the study and 805 questionnaires were fully completed. Sample characteristics indicated a good representation of the population characteristics (Table 1). In addition, comparison of early and late respondents on the focal constructs of the study indicated no significant non-respondent biases.

Measurement scales

Survey items used five-point Likert scales derived from existing scales validated in previous research. This research applies and contextualises Pascarella and Terenzini's (1980) involvement and interaction model to measure alumni involvement and interaction with their former peers and academic members to predict their persistence to their *alma mater*. Academic experience was captured using an eight-item Likert-like scale. The items focus on the evaluation of the interactions with academics as well as academic and intellectual development during their studies. Social experience was conceptualised as a seven-item five-point Likert scale evaluating peer-group interactions during their studies. To measure alumni identification with the university five items from the

TABLE 1
Sample and population characteristics

Characteristics	Total Population (Alumni registered)	Sample Population
Gender		
Male	55%	54%
Female	44%	46%
Average age (in years)	41.9	42.2
Age groups 21–30	21%	23%
31–40	34%	26%
41–50	21%	19%
51–60	16%	22%
60+	8%	10%
Graduation year		
2011–2002	31%	30%
2001–1992	33%	26%
1991–1982	17%	17%
1981–1972	13%	17%
1971–earlier	6%	10%

organisational identification framework from Mael and Ashforth (1992) were adapted. Alumni attitudinal loyalty was measured on a four-item scale adapted from Hennig-Thurau *et al.* (2001) and Zeithaml *et al.* (1996). Behavioural intention was contextualised as a five-item scale based on exploratory qualitative research and asked respondents how likely they are to support the university by giving lectures, acting as a mentor to students and to stay in contact with faculty over the next two-to-three years.

Scale validation

Confirmatory factor analysis was applied to assess the reliability and validity of the scales applied in this study (Gerbing and Hamilton, 1996). Goodness-of-fit indices suggested that the final measurement model fitted the data adequately ($\chi^2(280) = 1025.5$, $P < 0.001$). The comparative fit index (CFI = 0.94), the incremental fit index (IFI = 0.94) and the Tucker-Lewis index (TLI = 0.93) were all above the threshold of 0.9 and the root mean square error of approximation (RMSEA) = 0.058 was well below 0.08 (Bentler and Bonett, 1980). Standardised loadings of the remaining items were all significant and above 0.5 thus supporting convergent validity (Anderson and Gerbing, 1988). The constructs demonstrated adequate reliability with

Cronbach's alpha values and construct reliability indices ranging from 0.79 to 0.89. Average variance extracted was 0.5 or above for each construct and larger than the corresponding squared inter-construct correlation estimates thus confirming discriminant validity (Fornell and Larcker, 1981). Composite variables for each construct were calculated for further analyses. Sample means, standard deviations, construct reliabilities, average variance extracted and Pearson correlation coefficients were computed for all latent variables of this study (Table 2).

Results

Moderated regression analysis

In order to test the hypotheses, a two-step hierarchical moderated regression analysis using ordinary least squares was conducted for each dependent variable (Selmer *et al.*, 2013) (Table 3). Moderated regression assesses interaction effects within the hypothesised model that permits the slope of one or more independent variables to vary across values of the moderator variable. Mean centring has been employed in order to minimise the problems of multicollinearity between the interaction effects and the main effects in the model (Aiken and West, 1991). In addition, an examination of the variance inflation factors showed that no values were above two and thus confirms very low multicollinearity. The moderator (time since graduation) was incorporated through the inclusion of three additional factors in model 1b and model 2b.

Predicting alumni attitudinal loyalty

Consistent with previous studies (Farrow and Yuan, 2011; Newman and Petrosko, 2011) the results indicate a significant positive effect of recalled academic and social experience and alumni identity on attitudinal alumni loyalty. In addition, the effect of recalled academic experience ($b = 0.34$, $P < 0.001$) is higher than the effect of recalled social experience ($b = 0.17$, $P < 0.001$) confirming the findings of Hennig-Thurau *et al.* (2001) and Mael and Ashforth (1992) who demonstrated that recalled academic experience is a key determinant of loyalty. The effect of alumni identity ($b = 0.37$, $P < 0.001$) is of similar size to that of recalled academic experience. Based on these findings hypotheses H1a, H2a, H3a and H4a were supported.

The main effects of the hierarchical moderated regression analysis in model 1a accounted for 42 per cent of the variance in alumni attitudinal

TABLE 2

Means, standard deviations, construct reliabilities, average variance extracted and correlations among latent constructs

Construct	No. of items	Mean	SD	CR	α	1	2	3	4	5
1. Recalled academic experience	8	3.91	0.66	0.89	0.89	0.51				
2. Recalled social experience	4	4.18	0.73	0.87	0.89	0.27	0.64			
3. Alumni identity	5	3.56	0.72	0.84	0.84	0.33	0.19	0.52		
4. Attitudinal alumni loyalty	4	4.11	0.63	0.81	0.79	0.62	0.34	0.59	0.52	
5. Behavioural intention	5	2.25	0.93	0.83	0.86	0.20	0.13	0.38	0.35	0.50

Note: SD, Standard Deviation; CR, Composite Reliability; α, Cronbach's Alpha reliability estimates, Values in the diagonal represent the variance extracted.

TABLE 3
Hierarchical moderated regression analysis

| | Attitudinal Loyalty | | | | Behavioural Intention | | | |
| | Model 1a | | Model 1b | | Model 2a | | Model 2b | |
	Beta	t-Value	Beta	t-Value	Beta	t-Value	Beta	t-Value
Main Effects								
Recalled Academic Experience	0.34	11.63**	0.33	11.22**	0.22	6.25**	0.21	6.05**
Recalled Social Experience	0.17	6.08**	0.19	6.68**	0.03	0.79	0.03	0.75
Alumni Identity	0.37	13.03**	0.38	13.35**	0.27	7.77**	0.27	7.86**
Moderator Effects								
Recalled Academic Experience x Time			-0.12	-4.04**			-0.08	-2.1*
Recalled Social Experience x Time			-0.03	-0.99			-0.04	1.05
Alumni Identity x Time			0.13	4.47**			-0.02	-0.48
R^2	0.421		0.443		0.162		0.168	
F statistic	190.7**		103.8**		50.78**		26.36**	
Change in R^2			0.022				0.006	
Change in F statistic			10.16**				1.95	

Note: $* P < 0.05$, $** P < 0.001$.

loyalty. Adding 'time since graduation' as a moderator variable in model 1b led to a significant increase in the variance explained in attitudinal loyalty ($R^2 = 0.44$, change in $R^2 = 0.022$, change in F-value $F_{change} = 10.16$, $P < 0.001$) (Table 3). Hypothesis 5a is rejected as the results show a significant negative interaction effect between time since graduation and recalled academic experience ($b = -0.12$, $P < 0.001$). This indicates that the longer the time since graduation, the weaker is the positive relationship between recalled academic experience and alumni attitudinal loyalty. This may be consistent with the proposition discussed earlier that previous events may be compared unfavourably with more recent experiences that provide updated evaluation benchmarks, for example, the experience of lectures at university may be recalled negatively when compared with more recent and favourable experience of training courses attended.

In contrast, the interaction effects of time since graduation and recalled social experience are not significant. Thus, H6a is rejected. An explanation for this may be that good social experiences are stored in long-term memory and can be recalled regardless of the passage of time. This is consistent with the framework of cognitive dissonance advanced earlier whereby individuals tend to reinforce the recall of good elements of an experience. Hence the moderating effect of time in this case is limited.

The relationship between identity and alumni loyalty is moderated by time since graduation ($b = 0.13$, $P < 0.001$), supporting H7a. Thus the longer the time since graduation, the stronger is the positive association between identity and loyalty, supporting the findings of Iyer *et al.* (1997). This suggests that with the passage of time, the influence of academic experience declines and the influence of identity increases. Time since graduation should thus be taken into consideration as an indirect predictor of alumni attitudinal loyalty.

Predicting behavioural intention

The antecedents in model 2a are only able to explain 16 per cent in variation of behavioural intention of alumni to actively support and engage with the university. This apparently low level of variance explained is unsurprising given that behavioural intention entails active participation and engagement with the university. It may be more probable for engaged alumni to have general positive attitudes towards their *alma mater* than to display specific and highly supportive behaviours.

Only recalled academic experience ($b = 0.22$, $P < 0.001$) and alumni identity ($b = 0.27$, $P < 0.001$), but not recalled social experience, are

significant predictors of behavioural intention, supporting H1b and H4b, whilst H2b is rejected. In addition, H3b is supported as only the influence of recalled academic experience is significant but not that of recalled social experience. This is consistent with findings from previous research (Mael and Ashforth, 1992; Hennig-Thurau *et al.*, 2001) and extends knowledge by indicating that recalled academic experience is not only a key antecedent of alumni attitudinal loyalty but also of alumni's intention to undertake behaviours that support their university.

No noteworthy moderating effect of time since graduation on the relationship between recalled academic and social experience, identity and behavioural intention was found. The R^2 value of model 2a did not significantly improve by adding time as a moderator into the equation of model 2b ($R^2 = 0.17$, change in $R^2 = 0.006$, change in F-value $F_{change} = 1.95$, $P > 0.05$). There is a minor significant negative interaction effect between time since graduation and recalled academic experiences on behavioural intention ($b = -0.08$, $P < 0.05$). H5b, H6b and H7b are thus rejected.

The regression analyses provided interesting insights into the linkages between recalled experience, identity, attitudinal loyalty, behavioural intention and the passage of time but by itself, regression was not able to identify groups of students who might have distinct patterns of behaviour. In particular, the literature on strong and weak ties has suggested that the strength of ties could be related to loyalty but this could not be identified from the regression analysis alone. Therefore, a second stage of analysis used cluster analysis to identify distinct cohorts of alumni members with shared patterns of identity, recalled experience and loyalty.

Cluster analysis

A two-stage clustering approach was employed to identify distinct groups of alumni with similar characteristics (Everitt, 1974). The authors first applied Ward's method to determine the number of initial clusters (Punj and Stewart, 1983). In the second step, a non-hierarchical clustering technique (K-means algorithm) was applied (Hair *et al.*, 2010). The results reveal the suitability of a three-cluster solution. Analyses of variance and Chi-square analyses were employed to test for differences between the three clusters (Table 4). No significant differences with regards to gender composition of the clusters were found ($\chi^2 = 1.82$, $P > 0.05$).

TABLE 4

Cluster analysis of alumni

Dimensions	Cluster 1 'Strong ties'	Cluster 2 'Weak ties'	Cluster 3 'No ties'	F-value	Post-hoc tests[a]
Recalled academic experience	High (4.29)	Medium (3.98)	Low (3.38)	144.18**	1–2; 1–3; 2–3
Recalled social experience	High (4.37)	High (4.40)	Low (3.57)	133.48**	1–3, 2–3
Identity	High (4.07)	Medium (3.66)	Low (2.88)	248.10**	1–2; 1–3; 2–3
Attitudinal loyalty	High (4.54)	Medium (4.21)	Low (3.48)	266.34**	1–2; 1–3; 2–3
Behavioural intention	Medium (3.44)	Low (1.83)	Low (1.76)	629.50**	1–2, 1–3
No. of cases	216	379	210		
%	26.8%	47.1%	26.1%		

Notes: numbers in parentheses refer to means of the constructs within each cluster, ** $P < 0.001$, [a] indicate significant differences ($P < 0.001$) between the clusters.

Alumni: Strong or weak ties?

Social ties are usually defined quite vaguely and the measure of strength of ties is approximate at best (Jiang and Carroll, 2009). With regards to alumni, the cluster analysis resulted in three types of social ties based on the sociology and higher education literatures.

Cluster 1: *'Strong Ties'*. This cluster comprised 26.8 per cent of the sample. Alumni in this cluster reported the highest means for all constructs displayed in Table 3 and were thus labelled 'strong ties'. They had already built strong connections with academics, peers and the university during their time of study, as indicated by the high mean for alumni identity. These alumni tended to be highly involved in academic and extracurricular activities as students. Students' high involvement is consistent with favourable academic and social experiences (Liu and Jia, 2008). The role of students' experiences in shaping their perceptions and feelings towards the university continued after their time of study. McAlexander and Koenig (2010) found that alumni experiences of their education deeply impacted on their lives and self-concept, with anecdotal evidence of alumni who closely identify with former academic mentors who inspired their commitments and form the basis of strong ties. 'Strong ties' were more likely to have achieved a taught postgraduate or PhD degree from the university ($\chi^2 = 34.18$, $P < 0.001$) and are very likely to be still in contact with lecturers ($F = 88.1$, $P < 0.001$), other staff ($F = 56.61$, $P < 0.001$) and former students from the university ($F = 40.42$, $P < 0.001$). Thus 'strong ties' recognise their interdependence with other members of a broader academic community that includes other alumni, students and academics.

They are likely to identify with the institution with pride and exhibit loyal behaviours and attitudes towards fellow alumni members. Such supporting behaviours are not surprising given the considerable value of higher education in one's life. This impact on people's inspirations and values is indicative of a strong tie (Leonard and Onyx, 2003). Students, employees and alumni adorning themselves, their offices and their homes with university branded merchandise are good manifestations of strong ties; and in extreme cases, tattooing university insignia on their bodies (McAlexander and Koenig, 2012). 'Strong ties' in this study are on average aged 38.9 years.

Cluster 2: '*Weak Ties*'. This cluster comprised 47.1 per cent of the sample. Drawing on the social ties framework, 'weak ties' tend to have loose connections with the university, academics and professional

administrators, yet would still keep in contact with former students. Recently, researchers have emphasised the importance of Internet-based social network sites for the formation of weak ties because the technology is well-suited to maintaining such ties economically and easily (Farrow and Yuan, 2011). Social network sites enable users to create and maintain a larger, diffuse network of relationships from which they could potentially draw resources (Ellison *et al.*, 2007). 'Weak ties' ' interactions with the university and its members are likely to be less regular and instrumentally triggered by a need for information or assistance.

'Weak ties' would have recorded a reasonable level of recalled academic experience (though lower than 'strong ties'), yet a more favourable recalled social experience. They are very likely to be still in contact with former university students (F = 40.42, $P < 0.001$) at a similar level as strong ties but not with lecturers or other staff. Memorable 'fun times' at university are thus likely to lead to maintaining connections with peers but not necessarily with academics.

Compared to 'strong ties', 'weak ties' are likely to identify themselves slightly less with their *alma mater*, as well as exhibit lower levels of attitudinal loyalty levels. However, their intention to actively engage with the university in the foreseeable future is significantly lower in comparison to 'strong ties' and comparable to the 'no ties' cluster. Alumni in the 'weak ties' cluster were more likely to have achieved an undergraduate degree from the university ($\chi^2 = 34.18$, $P < 0.001$). 'Weak ties' are on average aged 42.3 years

Cluster 3: *'No Ties'*. This cluster comprised 26.1 per cent of the sample. 'No ties' exhibit less favourable attitudes than 'weak ties' towards their university experiences. They may be relieved or contented to have graduated, have moved on with their lives and leave their university experience in the past. In contrast to the other two clusters, a significantly higher proportion of 'no ties' are either already retired (15.3%) or self-employed (12.9%) ($\chi^2 = 30.83$, $P < 0.01$). A significantly higher proportion of 'no ties' (50.1% in contrast to 35% for strong ties and 44% for weak ties) have enrolled at another university for further studies ($\chi^2 = 10.81$, $P < 0.01$). This might explain the lack of ties to their first university and is consistent with Mael and Ashforth (1992) finding that the number of institutions attended is negatively related to identification with a given institution.

Hence, 'no ties' tend to be detached from their alma mater with low levels of identification with it. They are more likely to attribute their academic success mainly to their own efforts rather than to opportunities

the university has provided. This study suggests that 'no ties' are unlikely to still be in contact with lecturers or former students from the university. Therefore, unlike 'strong ties' and to a certain extent 'weak ties', these 'no ties' alumni do not feel a sense of indebtedness towards the university and are not motivated to alleviate this indebtedness through reciprocation (Newman and Dale, 2005). Reciprocation in the context of alumni would entail supportive and loyalty attitudes and behaviours. However, 'no ties' are not expected to exhibit high levels of either attitudinal loyalty or behavioural intention. 'No ties' are on average aged 45.3 years.

Conclusions and implications

This study has responded to previous calls to examine relationships between alumni identity and other variables (Jimenez-Castillo *et al.*, 2013). Earlier studies tended to look at student experience and alumni loyalty in isolation from each other but this research has made a contribution to knowledge by treating students' recalled experience as a driver of alumni loyalty behaviours. Furthermore, this paper distinguished between academic and social experience and found differential effects on alumni loyalty behaviours. Recalled academic experience plays a considerable role in influencing loyalty attitudes and behavioural intentions of alumni, whilst the role of recalled social experience is limited.

   A contribution has been made by incorporating the passage of time into the evaluation framework. Student experience can best be understood as a construct based on retrospective recall and this study has found that over time, the effects of recalled academic experience weaken in respect of attitudinal loyalty. In addition, this study adds to understanding about the role of identity over time. When passage of time is taken into account, the influence of identity with a university on alumni's loyalty increases. A further contribution of this study derives from the identification of alumni clusters. Based on the social ties framework, distinct groups of alumni with similar characteristics have been identified. The methodology has been robust in testing a theoretical model and subsequently using cluster analysis to probe more deeply the combination of characteristics that contribute to the existence of groups of alumni with different attitudes and behaviours.

   Much of the previous literature on alumni loyalty has been based on studies from the United States (US) where the importance of alumni has long been recognised, reflected in mature and sophisticated alumni

management offices in many US universities (Newman and Petrosko, 2011). This paper has made a contribution by taking a non-US perspective, thereby providing more balance in the literature available.

This study has several practical implications for higher education managers. To date, alumni associations have tended to adopt a mass relationship marketing approach that often results in low alumni engagement and hence wasted efforts. The identification of distinct clusters may suggest that alumni associations should adopt more segmentation and targeting in their approaches to alumni. This is consistent with Jimenez-Castillo *et al.* (2013) findings revealing the existence of heterogeneous groups of alumni that demand different interventions if long-term relationships with them are to be developed. In the case of 'strong ties' placing greater emphasis on the value of their academic experience, the alumni association in coordination with schools or departments could provide more opportunities for these alumni to relive some shared academic experiences. This may include offering online courses (for example, Massive Open Online Courses), which will also help updating alumni's academic knowledge but more importantly strengthen the recalled value of their academic experience that may otherwise atrophy over time. On the other hand, as 'weak ties' perceive a more favourable social experience during their times at university, alumni associations could aim to foster recall of this group's social experience through organising events, picture sharing and memorabilia. These interventions could also be expected to enhance alumni's sense of identification and subsequent loyalty. A large percentage of 'no ties' has been found to consist of alumni who had switched to other institutions to pursue further postgraduate studies. This suggests the importance to institutions of seeking to retain students to pursue postgraduate studies. This is likely to develop a strong sense of students' identification as well as potential loyalty attitudes and behaviours.

Despite the overall statistical significance and important implications of this study, limitations should be noted. Despite examining the variable of time since graduation, the nature of the data was cross-sectional. Additional studies might adopt a longitudinal design to more accurately examine the role of time in shaping the behaviour and attitudes of alumni. Another fruitful direction for future research may include further studies in the field of relationship marketing in higher education. The introduction of the full-fee policy in the United Kingdom (Richardson, 2011) undoubtedly gives heightened importance to the practice of relationship marketing between higher education institutions

and students or alumni. Finally, this paper has not probed deeply into causes of variance in loyalty behaviours over time that may be systematically attributed to the effects of gender or ethnicity and whether an alumni's degree classification (absolute value or in comparison with expectations) systematically affected subsequent loyalty.

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