DOI: 10.18261/9788215034393-2019-03

3. Should I stay or should I go? The effects of affect and ambivalence on attitude loyalty to a service provider

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SAMMENDRAG I denne analysen presenterer vi en lojalitetsmodell for sektoren for høyere utdanning hvor vi ser på hvordan studentenes følelser og ambivalens overfor holdninger kan påvirke studentenes lojalitet til en utdanningsinstitusjon. Basert på en spørreundersøkelse med et utvalg på 541 studenter, analyseres modellen ved hjelp av metoden for gruppesammenlikninger ved å bruke strukturelle ligningssystemer. Funnene viser at ambivalens har en signifikant modererende effekt på flere av relasjonene i modellen. Verdsetting av service kvalitet har en mye sterkere effekt på lojalitet når ambivalensen er lav, mens verdsetting av fasiliteter har en sterkere effekt på lojalitet når ambivalensen er høy. En generell implikasjon av disse funnene er derfor at administrasjonen/ledelsen må tilnærme seg ambivalente og ikke-ambivalente studenter på forskjellige måter. Et annet viktig funn med en tydelig implikasjon er at negative følelser har en sterkere negativ effekt på lojalitet enn de positive følelsenes positive effekt på lojalitet. For svært ambivalente studenter er det derfor viktigere å unngå situasjoner som kan utløse negative følelser enn å fremme de positive følelsene.

ABSTRACT The paper presents an empirical analysis of a loyalty model that explores the influence of emotions and attitude ambivalence on attitude loyalty to a higher education service provider. The basis for the study is a survey of 541 students and the method is multiple group structural equation estimation. Attitude ambivalence has significant moderating effects on the various relationships of the model. Service quality (intangible quality driver) has a much stronger effect on loyalty when ambivalence is low, whereas facilities (tangible quality driver) are more important when ambivalence is high. A general managerial implication is that management should approach ambivalent and non-ambivalent customers in different ways. By focusing on intangible aspects for low ambivalent customers and tangible aspects for high ambivalent customers, loyalty may

increase and thus improve the financial performance of the service provider. For highly ambivalent customers it is more important to avoid situations that can trigger negative emotional reactions, than to encourage the positive ones.

KEYWORDS loyalty models | service provider | emotions | ambivalence | multi-group SEM

3.1 INTRODUCTION

Institutions offering higher education are becoming more businesslike, and they represent an interesting part of the growing experience and credence based service industry.

Due to an increase in performance-based public funding of universities and university colleges, more global competition, and reforms initiated by the Bologna declaration to promote student mobility, student loyalty is important for higher education institutions (Marzo-Navarro et al. 2005). As student dropout rates have grown significantly in many countries over the recent decades, universities and colleges are struggling to solve the problem of student retention (Brooman and Darwent 2012; Hovdhaugen 2009). According to Jeffrey (2004, 155), student retention is a complex process because "... student expectations and perceptions may be unrealistic, thus increasing the risk for limited options appraised, myopic views, and misguided decisions. Additionally, students are frequently indecisive and ambivalent, vacillating between persistence, stopout, and dropout". An understanding of the student retention process is a necessary precursor for taking effective action, and student emotions and ambivalence are among the key issues in such an understanding. Emotions and ambivalence are, however, also key elements in an understanding of behavioural intention on a more general level and in particular within the experience and credence based part of the service industry (Zeithaml et al. 2012).

Emotional influences on consumer behaviour have for some time been recognized as an important issue in disciplines like psychology, social psychology, and psychology oriented marketing (Bagozzi et al. 2010; Laros and Steenkamp 2005; Scarabis et al. 2006). One main focus within psychology and social psychology connected to this research tradition has been on mixed emotions or what is termed *attitude ambivalence* (Armitage and Connor 2000; de Liver et al. 2007; Jonas et al. 2000). In this literature, attitude ambivalence has often been found to have moderating effects on attitude-intention relationships (Connor et al. 2002; Costa-

relli and Colloca 2007). In the consumer and the marketing literature, however, attitude ambivalence aspects are still underexplored (Sharma et al. 2015; Olsen et al. 2005; Watson and Spence 2007), and the empirical findings are mixed and inconsistent (Sharma et al. 2015; Tuu and Olsen 2010). Thus, there seems to be a gap between general theoretical claims from the psychologically inspired theory of consumer behaviour and the empirical practice regarding structural analyses within this modelling tradition.

The purpose of this study is to help bridging the gap between theory and empirical practice by disclosing the influence that emotions and attitude ambivalence may have on loyalty to a service provider. In particular, the study seeks to determine what kind of influence emotions and attitude ambivalence may have within a satisfaction-image-loyalty framework. Knowing whether attitude ambivalence is a predictor or a moderator of loyalty is important both for academicians and practitioners. The context is a Norwegian university college representing a service provider on the high end of the "difficult to evaluate continuum", where qualities typically are high in both experiences and credence (Zeithaml et al. 2012). The study addresses the following research questions:

1. Does the explanatory power of the satisfaction-image-loyalty model increase when including emotional variables?
2. How will emotions and attitude ambivalence influence attitude loyalty?
3. Which of the cognitive antecedents have the largest impact on attitude loyalty in the presence of attitudinal ambivalence?
4. What are the managerial implications of the findings?

The organization of the paper is as follows: The next part discusses the theoretical framework and the hypotheses with respect to two different versions of the model: the "core" model (excluding emotional variables) and the "expanded" model (including emotional variables). Section 3 gives a brief discussion of the context and the methodology. Section 4 presents the results of the different structural equation models (SEM). The last section discusses managerial implications, limitations and implications for further research.

3.2 THEORETICAL FRAMEWORK AND HYPOTHESES

3.2.1 THE THEORETICAL MODEL

In the business literature in general and the marketing area in particular, there are several frameworks, approaches, and models dealing with the main concepts of

this study. Thus customer loyalty forms one of the cornerstones of (customer) relationship marketing and management (Egan 2011; Ravald and Grönroos 1996; Sheth and Parvatiar 2000), service marketing and management (Lovelock and Wirtz 2007; Swartz and Iacobucci 2000), brand management (Aaker 1991; Keller 2008), consumer behavior (Schiffman and Kanuk 2004; Solomon 2007), as well as marketing communication (Hill 2009; Rossiter and Belman 2005).

Most often, measures of these concepts are included in goal hierarchies of balanced scorecard-approaches and/or of business models (Kaplan and Norton 1996, 2001, 2004, 2008; Rucci et al. 1998). For years, they have been included in quality models and related quality awards for business excellence (Heaphy and Gruska 1995; Seth et al. 2004). The main concepts also form the cornerstones of various disconfirmation models such as the National Customer Satisfaction Indicator (NCSI) approach (Chan et al. 2003; Johnson et al. 2001). Even though there have been some major contributions dealing with emotional impacts on customer attitudes (Laros and Steenkamp 2005; Oliver 1980, 1997), the mainstream literature within the satisfaction-image-loyalty framework does not yet treat emotions as central drivers of loyalty.

Figure 3.1 shows the proposed "expanded" model and the hypothesized relationships connected to this expansion. The model builds on the NCSI-approach, but we expand it in several ways in order to capture different effects of emotions and attitude ambivalence. When presenting concepts and hypotheses, the discussion of the pure satisfaction-image-loyalty model (the "core" model) is only brief. The study pays more attention to the "expanded" model including emotions and ambivalence.

The expanded model still perceives attitude loyalty as the ultimate dependent variable, but the modelling of emotions and ambivalence is more explicit than in earlier contributions. A central focus for any theoretical model dealing with consumer decisions in an unpredictable and uncertain environment should be on the consequences that emotions may have for economic behaviour (Elster 1998; Loewenstein 2000). One may regard the ultimate decision to stay loyal as an intertemporal choice with a large degree of uncertainty. Emotions are spontaneous states of mind that can have both a direct effect on the consumers' experiences (satisfaction) and a mediating effect on tangible and intangible drivers of consumer experiences on loyalty. The customer's present emotional state of mind may accordingly colour the evaluations of the satisfaction drivers.

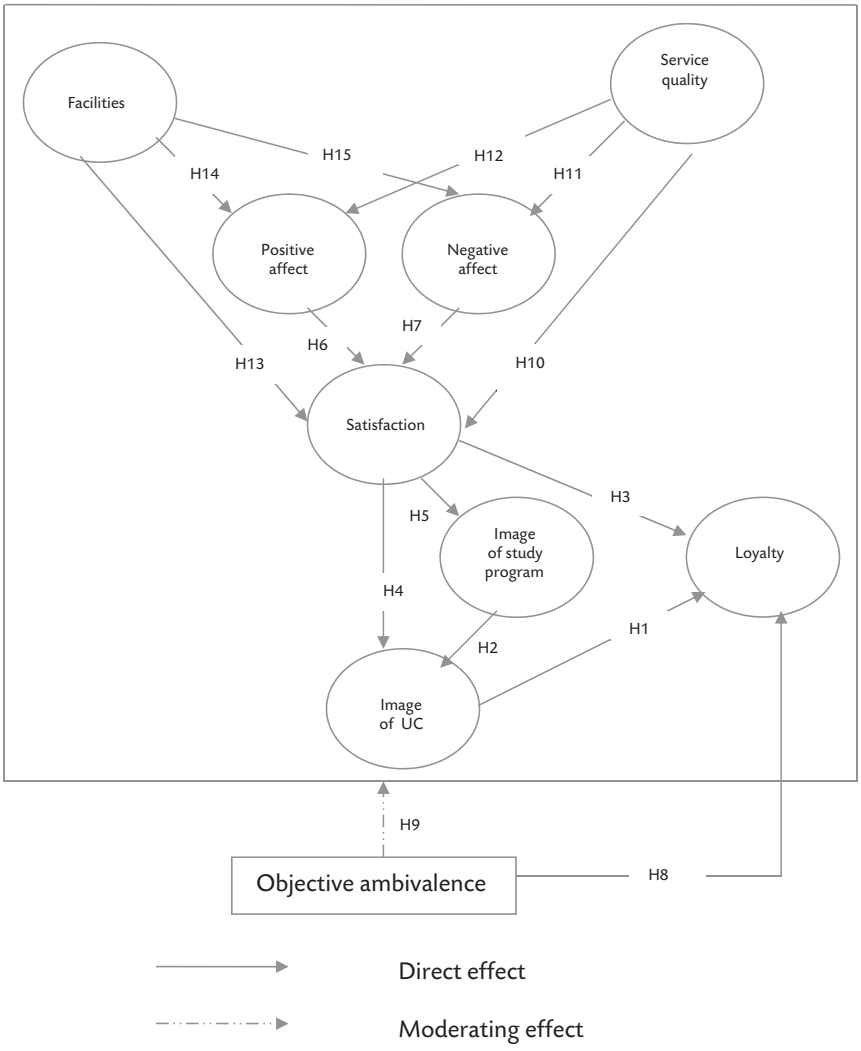

FIGURE 3.1 Proposed model.

3.2.2 THE CONCEPTS OF ATTITUDE LOYALTY, IMAGE AND SATISFACTION

Various definitions of customer loyalty exist (Dick and Basu 1994; Oliver 1997; Lam et al. 2004). Jacoby and Chestnut (1978, 1980) define customer loyalty as "the biased, behavioral response, expressed over time, by some decision-making unit, with respect to one or more alternative brands out of a set of such brands, and is a function of psychological (decision-making, evaluative) processes". This definition is close to the loyalty definition in the NCSI-approach (Johnson et al.

2001), where loyalty is a cumulative concept focusing on intended or expected consumption. This behavioural component relates to decisions that customers make regarding their mobility options, reflecting the conative attitudinal component. Building on the NCSI approach, antecedents incorporate both cognitive and emotional elements (Johnson et al. 2001).

Different stakeholders may form images at different levels, e.g. of a product, a brand, or an institution (Fombrun 1996; Fombrun and van Riel 1997; Lemmink et al. 2003). Several general definitions exist, such as a stakeholder group's "summary of the impressions or perceptions of a company" (Chun 1995, 2005), or as "a set of beliefs, ideas, and impressions held regarding an object" (Lovelock and Wirtz 2007, 628). In the present analysis, students are the main stakeholders, and they may form images of both their university college and the specific department (study program) that they belong to (Helgesen and Nesset 2007a). In accordance with the latest Norwegian NCSI-model (Johnson et al. 2001), the present study models image as an outcome of satisfaction, where satisfaction has a mediating effect on loyalty. The main reason for this causal direction is the cross-sectional characteristic of the data. Both measures are collected simultaneously, which naturally implies that the respondents' consumption experiences summarized in their reported evaluation of satisfaction will influence their reported corporate image evaluations. One normally perceives corporate brand image to have a spillover effect on the product brand images (Kotler et al. 2002), which would imply a spillover effect from the image of the university college to the images of the study programs. In this study, however, the image of the study program influences the image of the university college. This is due to the fact that the university college is relatively new and unmerited (Helgesen and Nesset 2007a). The image of the study program influences student loyalty indirectly via the image of the university college (H2), and the image of the university college influences loyalty (H1) (Helgesen and Nesset 2007a). Thus, student loyalty does not directly relate to the study program.

There are also various ways of defining customer satisfaction (Giese and Cote 2000; Oliver 1997), for example, as "a person's feelings of pleasure or disappointment resulting from comparing a product's perceived performance or outcome in relation to his or her expectations" (Kotler and Keller 2006, G7). This is in line with Lervik and Johnson (2003) who define consumer satisfaction as a cumulative evaluation of the consumer's consumption experiences to date, but also in line with Elliot and Healy (2001) who explains student satisfaction as an attitude that results from the evaluation of the student's experiences regarding educational services. Satisfaction influences loyalty both directly (H3), and indirectly via images (H4 and H5) (Helgesen and Nesset 2007a; Johnson et al. 2001).

3.2.3 AFFECTIVE REACTIONS AND ATTITUDE AMBIVALENCE

Oliver (1997) recognizes that affective or emotional reactions coexist alongside cognitive judgements in producing satisfaction, but make a distinction between emotions on the one hand, and affect and mood on the other hand. Affect and mood are often used interchangeably, and refer to the feeling side, including pleasure/displeasure and happiness/sadness. Emotion is a broader and more cognitively involved concept, including different types of affect as well as the "cognitive interpretations of affect that may be given a single description" (Oliver 1997, 294). In the present analysis, affect is chosen in order to compute customer ambivalence with respect to their different feelings. Ambivalence is defined as the degree to which an individual evaluates an attitude object positively and negatively at the same time. In order to construct the ambivalence variable, affect is measured as a two-dimensional construct consisting of positive and negative feelings (affects), a distinction made by several researchers (Wan et al. 2017; Alan et al. 2016; Laros and Steenkamp 2005). Both positive and negative affect relates to customer satisfaction (Szymanski and Henard 2001). Research regarding job satisfaction and quality of life shows the same dual-processing mechanism (Agho et al. 1993). According Wan et al. (2017, 8), ".. positive environmental attitude is positively related to environmentally motivated consumption reduction behaviour and negative environmental attitude is negatively related to environmentally motivated consumption behaviour." These arguments suggest that positive affect has a positive influence on student satisfaction (H6), and that negative affect has a negative influence on student satisfaction (H7).

The psychology literature normally treats attitude ambivalence as a facet of attitude strength. A strong attitude is one that will endure despite persuasive forces pulling in the opposite direction, which has important implications for the predictive power of the empirical findings (Converse 1995). Converse (1995, xi) claims that "if we can assess the strength of an attitude reliably, then we should possess an important kind of predictive power about the attitude's effects on the holder". The authors are only aware of a few studies (Olsen et al. 2005; Tuu and Olsen 2010) addressing the consequences of ambivalence on customer loyalty within a quality-satisfaction-loyalty modelling framework. In these studies, the context is seafood, and ambivalence is operationalized as a subjective perception by asking direct questions about customers' degree of ambivalence. Such an approach, however, assumes that the respondents are fully aware of their mixed feelings and thus able to rate their degree of subjective ambivalence. In some circumstances, and particularly in evaluating experience and credence-based services like higher education, this seems to be an unrealistic assumption. A more

indirect and objective way of measuring attitude ambivalence is to reveal the consumers' ambivalence by computing an index based on the consumers' separate ratings of positive and negative affects towards the attitude object.

There is still no consensus about the kind of effect ambivalence may have on consumer behaviour. There are theoretical arguments in the literature both for ambivalence to have a direct negative effect on customer loyalty (Sharma et al. 2015; Olsen et al. 2005; Sparks et al. 2001), and moderating effects between attitudes and behaviour (Sharma et al. 2015; Connor and Sparks 2002; Jonas et al. 2000). In line with this, objective ambivalence is hypothesized to have a direct negative effect on student loyalty (H8) as well as moderating effects on the links in the structural model (H9).

3.2.4 COGNITIVE QUALITY DRIVERS

A number of researchers use evaluation standards that are independent of any particular service context to help identify attributes of products and services, e.g., SERVQUAL (Parasuraman et al. 1988, 1994). Even if these scales help identify a set of drivers of general relevance, one should also consider additional dimensions that arise from industry-specific contexts (Abdullah 2005; Brochado 2009; Tsinidou et al. 2010; Voss et al. 2007).

Product and service attributes (cognitive quality drivers) relate both to positive and negative affect as well as to satisfaction (Mano and Oliver 1993; Oliver 1993). Research on job satisfaction and quality of life issues also reveals the same mechanisms (McKennell 1978; Organ and Near 1985). This duality (cognitive and affective drivers) also characterizes other business areas, for example, market communication (Buck et al. 2004; Ruiz and Sicilia 2004) and sales promotion (Laroche et al. 2003).

Based on earlier research on student loyalty (Helgesen 2008; Helgesen and Nesset 2007a, 2007b; Nesset and Helgesen 2009) this study proposes the following two cognitive quality drivers: students' evaluation of "service quality" and "facilities". The way that the service quality of educational services is measured (c.f. the next section) implies that the four intangible dimensions of the SERVQUAL model (reliability, responsibility, assurance, and empathy) are all present in this measure. However, they will not appear as four different dimensions, but rather as one integrated dimension, which is also confirmed by the factor analysis. As pointed out by Zeithaml et al. (2012), the professor is considered to be a main service provider of the metaphorically described "educational service provision drama". Students' evaluation of service quality will, therefore,

to a large extent focus on the professor's delivery of classes. However, other aspects should also be considered (Arena et al. 2010; Brochado 2009). "Facilities" represents the tangible dimension of the SERVQUAL model.

Based on the above discussion the paper offers six hypotheses regarding the two cognitive quality drivers. Service quality not only has the expected positive influence on student satisfaction (H10), but also a positive influence on positive affect (H12) and a negative influence on negative affect (H11). Facilities have in addition to the positive influence on student satisfaction (H13), a positive influence on positive affect (H14) and a negative influence on negative affect (H15).

3.3 METHODOLOGY

3.3.1 CONTEXT AND DATA SAMPLE

The data source is a survey among bachelor students of an earlier university college at the Midwestern coast of Norway.[1] The university college offered more than 15 bachelor study programmes covering engineering studies, business/marketing studies, health care studies, and fisheries and aquaculture studies. Three of the study areas, i.e. business/marketing studies, nautical/marine/maritime engineering studies, and fisheries and aquaculture studies, have been developed in close cooperation with the regional industrial environment (the marine and maritime industrial clusters). The university campus Ålesund has for a long period strengthened its relationship with these business sectors. New facilities hosting large multinational maritime firms like e.g. Rolls Royce and STX (Vard) have been built in close proximity to the campus area, and there are further plans for integration and co-location of businesses and the university college in future. An important and promising area for such integration between academia and business lies within the different simulator facilities that has been developed the last 5 years or so.

The present study recruits students to form a sample from different years in all the bachelor study programs. A total of 602 students returned the questionnaire of which 541 answered all the questions relevant for this study. One may thus describe this as a convenience sample. The sample is, however large, covering more than 1/4 of all the full-time students. It consists of 260 males and 281 females. The mean age of the respondents is 23.8 years, 23.6 years for female students and 24.1 years for male students. One can conclude that the sample is not non-representative of the population.

1. Ålesund University College was in 2016 merged into NTNU.

The empirical analysis uses 36 items (indicators) in addition to the constructed ambivalence index. Of these, 16 items measure the four main concepts, ten items measure the two mediating affect variables, and ten items measure the two cognitive antecedent variables. All indicators are originally measured on a seven-point Likert-type scale where 1 indicates the least favourable response alternative (very little satisfied, etc.) and 7 the most favourable response alternative (very satisfied, etc.). For presentation and comparison purposes, all indicators are transformed to 0–100 scales. Appendix A, B, and C presents descriptive statistics of the items, inter-item correlations, and descriptive and inter-construct correlations, respectively. All correlation coefficients above 0.14 are significant at the 0.001-level, those above 0.11 at the 0.01-level, and those higher than about 0.08 at the 0.05-level.

3.3.2 SATISFACTION, IMAGE, AND LOYALTY MEASURES

There are several ways to measure satisfaction (Babin and Griffin 1998). Ryan et al. (1995) assert that the measurement of the concept should cover three aspects: a summary judgement of the satisfaction level, a comparison with expectations, and a comparison with an ideal situation. This is the chosen approach in the present study. In addition, the analysis includes a question concerning the students' spontaneous judgements of their satisfaction with the university college.

There are also different ways of measuring image (Fombrun and van Riel 2004; Helm 2005). In this study, four items measure *Image of UC* (image of the university college): the students' perceptions of the image of the university college among the public, among acquaintances, among employers, and their own perception of the image of the university college. Four equivalent items measure *Image of study program*: the students' perceptions of the image of the study program among the public, among acquaintances, among employers, and their own perception of the image of the study program. The following four items measure *Attitude Loyalty*: the probability that the student speaks positively about the university college (positive "word of mouth"), the probability that they recommend the university college in general, to acquaintances, and the probability of attending again.

3.3.3 MESASURING AFFECTS AND COGNITIVE DRIVERS

The literature offers numerous of approaches and scales to measure affects (Laros and Steenkamp 2005; Richins 1997; Watson et al. 1988). This study uses five items reflecting feelings about being affiliated with the institution to measure

Positive Affect (PA): enthusiasm, pleasure, admiration, pride and delight. Similarly, five items measure *Negative Affect (NA)*: irritation, anger, disappointment, helplessness and falseness.

Regarding the first cognitive quality driver (*Service quality*), the measure consists of six items reflecting evaluation of the professional quality (of lectures), pedagogical quality (of lectures), service attitude, information, follow up and midterm evaluation. For the second cognitive quality driver (*Facilities*) the measure consists of four items: students' evaluation of the reading room, library, group rooms and the canteen.

3.3.4 MEASURING ATTITUDE AMBIVALENCE

There are different approaches to measuring consumer ambivalence (Audrezet and Parguel 2018; Audrezet et al. 2016). One approach is to measure ambivalence as a subjective attitude (Olsen et al. 2005). Another one is to postulate an evaluation space model (ESM) of both positive and negative evaluations (e.g. Audrezet et al. 2016). A third approach is a measuring of the simultaneous evaluation of positive and negative attitudes by the so-called Griffin-index, which is an objective way of measuring ambivalence. This paper uses the latter approach, by calculating the Griffin-index of mixed positive and negative affects in the following way:

$$\text{Ambivalence} = (PA + NA)/2 - |PA - NA|$$

where PA (positive affect) and NA (negative affect) use unipolar scales in two different set of questions (Connor and Sparks 2002). PA and NA are both summated scales (mean values) of the underlying items belonging to PA and NA, respectively.

3.3.5 THE ANALYTICAL APPROACH

In order to test the hypotheses of the theoretical model (figure 3.1), the analysis employs the two-step confirmative modelling strategy (Hair et al. 2010). The first step establishes a congruent measurement model, and the second step analyzes the structural model. Both steps apply the technique of structural equation modeling (SEM) by using LISREL VIII (Jöreskog et al. 2001). SEM is the recommended approach in research cases like ours, where the researcher is faced with interrelated questions and multiple dependent variables. LISREL focuses on explanation

of covariance rather than variance (as regression-based methods like e.g. PLS do), and is thus well suited for explaining relationships in complex models with multiple dependent variables. The sample size (541) is large enough to justify the use of LISREL, and the chosen two step SEM approach incorporates the validity and reliability testing in a way that makes the approach well suited for theory testing (Hair et al. 2010).

In order to test moderating effects within complex models, one can use either moderating regressions or a multiple group SEM (Hair et al. 2010). The most common method for studying moderating effects in SEMs is the latter. The potential moderator – ambivalence – is, however, a metric variable that needs to be transformed to a categorical variable. This categorization should be based on both logic and empirical characteristics. It is well recognized in the social psychology literature – both theoretically and empirically – that attitude ambivalence might act as a moderator on consumer attitude-intention relationships (de Liver et al. 2007). In addition, inspection of the distributional characteristics of this constructed moderator variable reveals two clear peaks – one with low ambivalence (values between -25 and -35) and one with high ambivalence (values between +25 and +45). It thus makes sense to categorize ambivalence into two groups (high and low ambivalence), and a median split is used for this categorization. In our case the median of objective ambivalence (11.67) is used to split the sample into the two subsamples (1) low ambivalence ($\leq$ 11.67) and (2) high ambivalence ($>$ 11.67). The low ambivalence sample contains 267 respondents while the high ambivalence sample contains 274 respondents.

By estimating identical structural models for each of the subsamples and comparing the structural coefficients, it is possible to uncover the moderating effects of ambivalence. A prerequisite for valid testing of moderation affects by applying the multiple group approach is, however, to establish configurational and metric invariance of the two (high and low ambivalence) measurement models (Hair et al. 2010). Configurational invariance is present if the two models are identical and show acceptable fit. Metric invariance is fulfilled if the two models have similar factor loadings – i.e. the basic meanings of the different constructs are equivalent. Now, if the structural coefficients differ significantly, moderating effects are present. However, if ambivalence is both a moderator and a predictor, the median split method is not the appropriate method to use. The split will in this case cause a reduction in predictor variance, which will be present in the dependent measure as well (Olsen et al. 2005). In this case, a more appropriate method would be a moderating regression approach. In order to decide which of the methods to apply, one must first test the hypothesis of a direct effect of ambivalence on loyalty.

3.4 RESULTS

3.4.1 MEASUREMENT MODELS

Table 3.1 presents the standardized loadings and t-values of the eight latent variables as well as two measures of convergent validity and five different fit measures of the full sample measurement model.

TABLE 3.1 Measurement confirmatory analysis for the full sample model (n=541). Standardized coefficients, t-values, and construct reliability

Constructs and indicators	Standardized		Composite	Variance
	loading	t-value	reliability	extracted
Attitude loyalty			0.93	0.69
Positive "word of mouth"	0.90	27.05		
Recommendation in general	0.95	29.89		
Recommendation to acquaintances	0.96	30.11		
Probability of attending again	0.70	18.66		
Satisfaction			0.91	0.72
Spontaneous judgement	0.83	23.34		
In general	0.91	27.00		
Compared with expectations	0.83	23.64		
Compared with an ideal one	0.82	22.91		
Image of UC			0.89	0.66
Among the general public	0.87	24.91		
Among acquaintances	0.75	20.01		
Among employers	0.76	20.22		
Own perception	0.87	24.70		
Image of study programme (SP)			0.87	0.63
Among the general public	0.75	19.57		
Among acquaintances	0.76	19.92		
Among employers	0.79	21.05		
Own perception	0.87	24.59		

Constructs and indicators	Standardized		Composite	Variance
	loading	t-value	reliability	extracted
Positive affect			0.88	0.59
Enthusiasm	0.81	21.91		
Pleasure	0.72	18.60		
Admiration	0.78	20.85		
Pride	0.76	20.12		
Delight	0.76	20.04		
Negative affect	0.89	0.63		
Irritation	0.83	22.92		
Anger	0.80	21.90		
Disappointment	0.85	23.89		
Helplessness	0.70	17.97		
Falseness	0.79	21.30		
Service quality			0.81	0.41
Professional quality of lectures	0.70	17.44		
Pedagogical quality of lectures	0.71	17.62		
Service attitude	0.65	15.60		
Information	0.59	13.84		
Follow up	0.59	14.04		
Midterm evaluation	0.59	13.89		
Facilities			0.76	0.45
Reading room	0.78	19.15		
Library	0.80	19.76		
Group rooms	0.54	12.32		
Canteen	0.50	11.33		

Fit measures: χ^2/df=2.36; RMSEA=0.051; NNFI=0.94; CFI=0.94; SRMR=0.043

The measurement model shows good fit according to different fit measures (RMSEA=0.051; NNFI=0.94; CFI=0.94; SRMR=0.043). All the loadings are highly significant, and for the six endogenous variables, the loadings are all above 0.7. For these variables, both measures of convergent validity (composite reliability and variance extracted) are well above the recommended minimum values (0.7 and 0.5, respectively). Convergent validity for the two exogenous variables service quality and facilities is less convincing as the two measures point to opposite conclusions. According to the composite reliability measure, they are well above the minimum recommendation value (0.81 for service quality and 0.76 for facilities). Variances extracted, however, are slightly below the minimum level (0.41 for service quality and 0.45 for facilities).

Discriminant validity of the concepts is tested by restricting the correlation (cf. Appendix C) between all pairs of concepts to unity and comparing the chi-square of this restricted model with the chi-square of the unrestricted model. The change in chi-square is significant, indicating that the variables are different concepts.

Because all measures are from the same self-reporting source there might be a danger of overestimating the true relational correlation between the concepts, that is, the common methods variance (CMV) problem. The Hartman's single factor test and the delta test (Podsakoff et al. 2003), however, reveal no indication that CMV is a serious problem in the present data set.

TABLE 3.2 Measurement invariance tests for low ambivalence students (n=267) compared with high ambivalence students (n=274)

Models	**Model fit measures**				**Model difference**		
	χ^2	**df**	**p**	**RMSEA**	$\Delta\chi^2$	**Δdf**	**p**
Separate groups:							
Low ambivalence	960.16	566	0.001	0.049			
High ambivalence	1113.88	566	0.001	0.060			
Configural invariance	2074.04	1132	0.001	0.055			
Metric invariance	2107.77	1160	0.001	0.054	33.73	28	0.26

Table 3.2 shows different measurement invariance tests for the two sub-sample models. Both models show acceptable fit according to RMSEA when estimating separate models. The estimation results also convey adequate construct validity. Estimating the totally parameter free multiple groups model obtains a RMSEA of

0.055. This model serves as the baseline model for comparison when testing metric invariance. The present study tests the baseline model against a restricted model where the loadings are equal across the two groups. The change in χ^2 between the two models is 33.73 with 28 degrees of freedom. The restrictions are thus not rejected (p=0.26), and metric invariance is present. A simple t-test reveals that the mean value of the four attitude loyalty items (shown in table 3.2), differ significantly between high and low ambivalent students. Less ambivalent students are on average about 10 % points more loyal than their more ambivalent student colleagues, and this calls for a further investigation of possible effects of ambivalence on loyalty.

TABLE 3.3 Mean value differences for loyalty, satisfaction and image[1] between low and high ambivalence students

Variable	Group	Mean value	t-value group difference
Attitude loyalty			5.68
	High ambivalence	55.08	
	Low ambivalence	66.46	
Satisfaction			6.17
	High ambivalence	52.07	
	Low ambivalence	61.13	
Image UC			4.20
	High ambivalence	57.47	
	Low ambivalence	63.14	
Image SP			4.50
	High ambivalence	59.73	
	Low ambivalence	65.95	

1 The variables are computed as mean values for the corresponding indicators (see table 1)

3.4.2 STRUCTURAL MODELS

In order to answer the research questions and test the hypotheses, the study presents estimates of five different structural model versions. Three of these (M1, M2, and M3) are full sample (n=541) estimations, and they only differ with respect to the restrictions put on the links concerning the emotions variables (table 3.4). The models M4 and M5 involve sub-samples connected to low (n=267) and high (n=274) ambivalent students, respectively (table 3.5).

TABLE 3.4 Structural model results (full sample): Standardized path coefficients (t-values in parentheses) and model fit of the core model and the expanded models

		Models		
	Hypo-thesis	**Expanded model 1 (n=541) M1**	**Expanded model 2 (n=541) M2**	**Core model (n=541) M3**
Paths:				
Image UC→Loyalty	H1	0.20 (5.07)	0.20 (5.12)	0.22 (5.49)
Image study programme→Image UC	H2	0.48 (8.70)	0.48 (8.71)	0.49 (8.78)
Satisfaction→Loyalty	H3	0.76 (16.26)	0.75 (16.39)	0.73 (15.91)
Satisfaction→Image UC	H4	0.41 (7.85)	0.41 (7.85)	0.39 (7.58)
Satisfaction→Image study programme	H5	0.71 (14.59)	0.71 (14.55)	0.71 (14.59)
Service quality→Satisfaction	H10	0.19 (4.04)	0.20 (4.60)	0.64 (11.43)
Facility→Satisfaction	H13	0.12 (3.54)	0.11 (3.45)	0.22 (4.74)
Positive affect→Satisfaction	H6	0.45 (11.53)	0.45 (11.42)	r
Negative affect→Satisfaction	H7	–0.38 (–10.04)	–0.39 (–10.75)	r
Ambivalence→Attitude loyalty	H8	0.01 (0.49)	r	r
Service quality→Negative affect	H11	–0.60 (–9.72)	–0.53 (–9.43)	r
Service quality→Positive affect	H12	0.50 (8.39)	0.50 (8.88)	r
Facility→Positive affect	H14	0.17 (3.03)	0.17 (3.14)	r
Facility→Negative affect	H15	–0.05 (–0.89)	–0.08 (–1.42)	r

		Models		
	Hypo-thesis	**Expanded model 1 (n=541) M1**	**Expanded model 2 (n=541) M2**	**Core model (n=541) M3**
Model fit:				
χ^2/df	2.703	2.698	3.773	
RMSEA	0.057	0.056	0.067	
NNFI	0.92	0.92	0.86	
CFI	0.92	0.92	0.87	
SRMR	0.053	0.053	0.230	
R^2 (loyalty)	0.83	0.83	0.82	
R^2 (satisfaction)	0.81	0.81	0.59	
R^2 (image UC)	0.68	0.68	0.68	
R^2 (image study program)	0.51	0.51	0.51	

r = restricted to zero

Table 3.4 shows standardized path coefficients, t-values, and model fit for the three full sample structural models. The basic structural model, M1, corresponds to the expanded theoretical model in figure 3.1, with a direct link from attitude ambivalence to loyalty. The model fit of M1 is satisfactory (RMSEA=0.057, NNFI=0.92, CFI=0.92, SRMR=0.053), but attitude ambivalence has no significant direct effect on loyalty. By imposing a zero restriction on this non-significant link, we obtain the preferred full-sample model M2. The fit measures of this restricted model improve modestly compared to the basic model. We can thus reject hypothesis H8, and assume that objective ambivalence does not have a direct effect on student loyalty in this sample.

By restricting all other links involving the emotional variables, we obtain the "core model", M3. The results of M3 are similar to results from earlier analyses of student loyalty with different samples (Helgesen 2008; Helgesen and Nesset 2007a, 2007b; Nesset and Helgesen 2009). This confirms the adequacy of this satisfaction-image-loyalty modelling approach. Student loyalty seems to be mainly satisfaction driven, and this result is quite robust both across types of study and over time. The model fit of M3 is, however, significantly lower than

model fits of the expanded model M2 (RMSEA=0.067, NNFI=0.86, CFI=0.87, SRMR=0.23).

Regarding the hypotheses concerning the expanded model, M2, the estimation result supports all of them except of one (H15: Facilities have a negative influence on negative affects), cf. table 3.4. There is a rejection of Hypothesis H8, as discussed above. The section below discusses hypothesis H9 regarding mediating effects of attitude ambivalence is discussed below. In order to partly answer the first research question – *Does the explanatory power of the model of student loyalty increase by including affect variables in the satisfaction-image-loyalty framework of the study?* – a comparison of chi-squares between M2 and M3 (assuming rejection of all the hypotheses H6, H7, H11, H12, H14, and H15) is conducted. There is an increase in chi-square between M2 and M3 of 670.2 (df=6), indicating a clear rejection of these restrictions. Positive and negative affects thus play important roles in explaining student loyalty. The variances in loyalty and satisfaction explained by the structural models (R^2) are higher in the extended model (M2) than in the core model (M3). In particular, there is a 24 % increase in the variance explained of satisfaction when extending the core model to include affective variables.

Ruling out a direct effect of attitude ambivalence of student loyalty (i.e. rejection of hypothesis H8) a multiple group analysis method for analyzing moderating effects is valid. The model versions M4 and M5 are estimated on the low ambivalence and high ambivalence subsamples, respectively.

The results shown in table 3.5 indicate quite substantial differences in the path coefficients. Restricting all the path coefficients to be equal in the two models is clearly rejected by a $\Delta\chi^2$ test ($\Delta\chi^2$ (Δdf=13) = 85.03), supporting hypothesis H9 of significant moderating effects. The model fit of M4 (low ambivalence) is significantly better than the fit of M5 (high ambivalence) according to all the fit indices. Satisfaction has a much stronger effect on loyalty when ambivalence is low, compared to a situation with high ambivalence. Images, on the other hand, have larger effects on loyalty when ambivalence is high than when ambivalence is low. Another important difference between the low and the high ambivalent sub-samples is connected to the effect of the cognitive drivers. When ambivalence is low, service quality is largely mediated by the affect variables, compared to a situation with high ambivalence. Facility has no significant effect on satisfaction and the two affect variables when ambivalence is low. When ambivalence is high, facility has a significant effect on satisfaction. It is also worth noting that the model estimated on the low-ambivalence group has more predictive power (higher variance explanation and better fit) than the model estimated on the high-ambivalence group, a phenomenon also found in other analyses (Converse 1995).

TABLE 3.5 Structural model results: Standardized path coefficients (t-values in parentheses) and model fit of the high ambivalence and the low ambivalence expanded models

	Models	
	Low ambivalence (n=267) M4	**High ambivalence (n=274) M5**
Paths:		
Satisfaction→Loyalty	0.80 (13.40)	0.68 (9.46)
Image UC→Loyalty	0.15 (2.86)	0.27 (4.48)
Positive affect→Satisfaction	0.46 (8.73)	0.48 (6.87)
Negative affect→Satisfaction	–0.44 (–9.28)	–0.45 (–6.13)
Satisfaction→Image UC		0.50 (6.51)
Satisfaction→Image study programme	0.73 (10.99)	0.63 (8.24)
Image study programme→Image UC	0.37 (4.78)	0.63 (7.84)
Service quality→Satisfaction	0.15 (2.15)	0.23 (3.81)
Service quality→Positive affect	0.67 (8.34)	0.16 (1.87)
Service quality→Negative affect	–0.74 (–8.41)	–0.30 (–3.42)
Facility→Satisfaction	0.08 (1.87)	0.19 (3.38)
Facility→Positive affect	0.11 (1.52)	0.07 (0.86)
Facility→Negative affect	0.14 (1.63)	–0.16 (–1.89)
Model fit:		
c^2 /df	1.72	2.00
RMSEA	0.049	0.062
NNFI	0.94	0.86
CFI	0.95	0.87
SRMR	0.049	0.076
R^2 (loyalty)	0.85	0.78
R^2 (satisfaction)	0.90	0.75
R^2 (image UC)	0.65	0.73
R^2 (image study programme)	0.54	0.39

Equality restrictions test (structural coefficients M_4 equal to structural coefficients M_5): $\Delta\chi^2$ (Δdf=13) = 85.03

3.5 DISCUSSION, IMPLICATIONS AND FURTHER RESEARCH

This paper employs a satisfaction-image-loyalty framework to analyse the effects of affects and attitude ambivalence on attitude loyalty. The study confirms that the core satisfaction-image-loyalty model empirically is well founded in the context of educational services. Student loyalty is to a large extent satisfaction driven, with service quality as the most important antecedent. Satisfaction has both a direct effect on loyalty and an indirect effect via perceived images. However, all the five included mediators in the model (positive and negative affects, satisfaction, image of the study program, and image of the university college) are significant drivers of student loyalty.

The results also show that an extension of the core model to account for affective variables is important in order to increase the amount of explained variance. The explained variances (R^2) in loyalty and satisfaction are higher in the extended model than in the core model. In particular, the explained variance in satisfaction increases by 22 % points from 59 % to 81 %. Affects seem to work through two different channels: (1) they have a filtering (mediating) effect of the influence of the cognitive drivers on satisfaction and thus also on loyalty, and (2) they combine in a measure of mixed emotions (ambivalence) that has a moderating effect on the main links from satisfaction and image to loyalty.

TABLE 3.6 Moderating effects: Total, direct and indirect effects (t-values in parentheses).

Path		Sub samples	
	Effect	Low ambivalence	High ambivalence
Service quality → Loyalty	total (indirect)	0.72 (10.44)	0.38 (5.84)
Facility → Loyalty	total (indirect)	0.07 (1.12)	0.26 (4.18)
Satisfaction → Loyalty	total	0.92 (19.11)	0.86 (12.69)
Satisfaction → Loyalty	direct	0.80 (13.40)	0.68 (9.46)
Positive affects → Loyalty	total (indirect)	0.42 (8.69)	0.42 (6.89)
Negative affects → Loyalty	total (indirect)	-0.40 (-9.23)	-0.39 (-6.14)
Image UC → Loyalty	total (direct)	0.15 (2.86)	0.27 (4.48)
Image study programme → Loyalty	total (indirect)	0.05 (2.42)	0.17 (3.99)

The total effects of the two cognitive drivers on loyalty can be split into effects on loyalty mediated by satisfaction and images, effects mediated by positive affect, satisfaction, and images, and effects mediated by negative affect, satisfaction, and images. Table 3.6 shows the standardized effects of the cognitive antecedents on loyalty both for the full sample model (M2), and for the two sub-sample models with low (M4) and high (M5) ambivalent students, respectively.

Disregarding the moderation effects – i.e. just looking at the full sample model results (model M2 in table 3.6) – one would falsely ascribe 68 % of the total effect of service quality on loyalty as mediated through positive and negative affects and in a symmetric way (with about equal weights). Additionally, one would falsely ascribe 50 % of the total effect of facility on loyalty as mediated through the same affective variables, but mainly via positive affect. However, this changes entirely when taking account of the moderating effects of ambivalence. When ambivalence is low (model M4 in table 3.6), the total effect of service quality on loyalty is significantly strengthened compared to a situation with high attitude ambivalence (model M5 in table 6), with coefficients of 0.72 and 0.38, respectively. On the other hand, the total effect of facilities on loyalty is weakened when students have low ambivalence. The effect is not significant when ambivalence is low and 0.26 when ambivalence is high. When ambivalence is low, as much as 81 % of the total effect of service quality on loyalty is mediated through the two affective variables, and in a symmetric way. Facility has only a minor effect on loyalty in this case, and there is no affective mediation. When ambivalence is high, about 48 % of the total effect of service quality on loyalty and 36 % of the total effect of facility on loyalty are mediated through the affective variables. It is, however, important to note that the mediation in this case mainly works through negative affect.

Regarding the effects of positive and negative affects on student loyalty, Nesset and Helgesen (2009) found that positive affect was more influential than negative affect, a result in accordance with M2 (the full sample) in table 6. However, by considering the low and high ambivalent groups, the mediating effects of positive and negative affects differ. While positive and negative affects have much the same effect on loyalty for the low ambivalence group, negative affect have about the double mediating effect on attitude loyalty than the positive emotions for the high ambivalent group. This is in accordance with the negative bias theory and the prospect theory (Baumeister et al. 2001) where losses predominate gains, implying that negative emotions have a more persistent effect on consumers than positive emotions. This further implies that the cognitive antecedents' impact on student loyalty in the presence of attitudinal ambivalence has to be conditionally measured, i.e. based on the various levels of ambivalence (high or low) as dis-

cussed above. Thus, the inclusion of affective variables and attitude ambivalence in this model enriches the insight obtained by decision makers.

When deciding which activities that should be carried out, managers should consider the moderating effects of ambivalence. An "ideal situation" would be to customize the offers to the students based on insight regarding their levels of ambivalence. However, this is probably neither viable nor desirable.

The findings indicate that managers in addition to offering high service quality ("intangibles") should try to convince their customers about the superiority of their facilities ("tangibles"). Literature within marketing communications, customer relationship management (CRM) and customer experience management (CEM) might give some ideas of how to use information systems to improve the interaction between students and university colleges (Fill 2009; Puccinelli et al. 2009; Seeman and O'Hara 2006). Favourable and reliable information may be presented at the home pages, in newsletters, in articles in newspapers, etc. For this specific university college messages and stories about the different simulator facilities within the maritime sector may be of great importance, cf. the discussion regarding the context above. In addition, findings from student surveys regarding service quality should also be published and discussed in the classes in order to find the appropriate activities for increased student satisfaction and loyalty.

With highly ambivalent students, it seems to be much more important for professors and administrators of educational institutions to avoid situations that can trigger negative affective reactions than to encourage positive ones. This is a problem where more research is needed. In particular, greater effort should be put into analysing elicitors and stressors of ambivalence. More attention should also be paid to effective ways of reducing stressors connected to attitudinal ambivalence. There is a growing psychological literature on coping strategies and coping frames directed at resolving personal ambiguity which should be relevant also in an educational service context (van Harreveld et al. 2009; Kramer et al. 2009; Rucker et al. 2008). In order to meet the challenges produced by ambivalence, future research on attitude loyalty should probably focus on both coping strategies and coping frames.

Considering that only two quality drivers (antecedents) are included in this research model, the proportions of variances explained in the endogenous variables (especially loyalty and satisfaction) are rather high, indicating a structural model with good fit. Still the number of antecedents should be augmented in future studies. Similar analyses in other service contexts are also highly welcome.

3.6 CONCLUSION

This analysis demonstrates that affective aspects play an important role in shaping consumers' attitudes in areas where young people are concerned and where experience and credence-based services are involved. Highly emotional ambivalent customers seem to be less loyal, and because one of the important aspects of attitudinal loyalty is connected to "word-of-mouth", a large fraction of emotional ambivalent customers may cause a "vicious circle" of loyalty creation that could be devastating for a small and unmerited service provider. The literature on service satisfaction and loyalty has so far not been sufficiently attentive to this aspect.

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