MEASURING CUSTOMER SATISFACTION: FROM PRODUCT PERFORMANCE TO CONSUMPTION EXPERIENCE

Francesca Bassi, University of Padova, Italy
Gianluigi Guido, University of Lecce, Italy

ABSTRACT

The aim of the present work is to propose a scale to measure customer satisfaction with reference to product and integrated services, in a broader context than simply evaluating product performance, i.e., by measuring aspects involved in pre- and post-purchase stages. The proposed scale has three versions: for convenience, shopping, and specialty goods. The scale for shopping goods was also administered to a sample of buyers of a specific branded product (i.e., a pair of jeans) and evaluated for validity and reliability. Lastly, latent class models are estimated in order to verify if there exists a judgment of satisfaction in each phase of the consumption experience.

INTRODUCTION

Customer satisfaction is traditionally defined by means of the so-called "disconfirmation paradigm," as an evaluation emerging from the post-purchase comparison between product/service performance and customer expectations (Oliver 1993). This concept has been the topic of recent studies (e.g., Spreng, et al. 1996) which argue that, although this paradigm must still be considered valid in its basic formulation, it should be extended as regards expectancies: i.e., *expectations*, which represent cognitive elements with a rational nature, should be considered together with *desires*, which represent motivational elements associated with personal objectives.

Until now, however, the other term of comparison – product performance – has not been extended by considering the social, other than material, nature of consumption in affluent societies (Hirsch 1976). The main changes to be considered regard the various stages of consumers' decision-making processes, and are related to: the new company orientation to "customers as products" (Varaldo and Guido 1997); the salience of marketing stimuli capable of influencing consumers' expectations (Guido 2001; Pratkanis and Aronson 1992); and the increasing integration between products and services integrated (Varaldo and Fiorentino 1996), which stimulates consumers' search for intangible elements which could add value to their products and provide consumer experience (Pine and Gilmore 1999; Schmitt 1999).

This paper follows the research lines of the above-mentioned literature by proposing a different approach to customer satisfaction measurement. The nature of the concept is maintained as an evaluation deriving from a comparative process, but we change or, better, extend the terms to which expectations and desires are compared: from product performance alone to the entire consumption experience. Consumers develop expectations and desires with reference to many aspects of the consumption experience, not merely with perceived product performance. If these expectations are disregarded, this reflects, in turn, on the satisfaction/dissatisfaction judgement. For example, the purchase of a small car is evaluated not only on the basis of experienced performance in comparison with expectancies (both rational expectations - if it uses only a little petrol, is easy to park and drive, etc. - and personal desires - if it looks, in some way, like the dreamed-of sports car, if it helps socialise, etc.), but also with reference to all the stages that precede and follow purchase - if it was easy to find information about it, if the salesman was polite, if the car has a valid warranty, and so on.

The aim of the present work is to propose a scale to measure customer satisfaction with reference to product and integrated services (Varaldo and Fiorentino 1996), in a broader context than simply evaluating product performance, i.e., by measuring aspects involved in pre- and post-purchase stages. The proposed scale has three versions: for convenience, shopping, and specialty goods. The scale for shopping goods was also administered to a sample

of buyers of a specific branded product (i.e., a pair of jeans).

Latent class models were estimated in order to evaluate if customer satisfaction is a unique concept or if a satisfaction judgment emerges in each of the five phases constituting a consumption experience.

The paper is organized as follows. Section 1 briefly describes the main changes in relationships between customers and firms, which impose an extension of the traditional disconfirmation paradigm. Sections from 2 to 5 describe the steps along which the scale was built and evaluated. Section 6 introduces latent class models and reports results of estimation on our data. Section 7 contains some concluding remarks and suggestions for future research.

A RE-EXAMINATION OF THE DISCONFIRMATION PARADIGM

A re-examination of the traditional disconfirmation paradigm should consider recent changes in affluent societies with reference to three main aspects: the role of *consumers as products* (Varaldo and Guido 1997); the greater importance of the immaterial aspects of companies' offers, which integrate services with products (Guido 1999; Varaldo and Fiorentino 1996); and the increasing impact of experiential marketing (Pine, Gilmore 1999; Schmitt 1999).

Consumers are the real, "final product" of a company, since the goods they consume shape their expectations and desires and, in turn, determine their satisfaction. Firms "produce" customers to the extent that they can modify both the salience of expectation contents and desire priorities (Guido 2001). By contributing towards forming expectations and desires, marketers can anticipate consumers' wants and, consequently, create satisfied customers.

In this context, the offer of intangible elements - i.e., services integrated with products - may play a primary role. In affluent societies, the relationship between firms and customers is a kind of service relationship, mediated by the physical transfer of goods: the production of "utility" for customers is represented by integrated services, the use of which coincides with the consumption experience and on which they base their process of satisfaction evaluation.

Customers' experience, in all stages of the consumption process, becomes important for both expectation generation and benefit evaluation. The so-called *experiential marketing* approach stresses the role of experience as a fundamental element in the consumption process and defines the perceptive channels through which individuals undergo such experiences. All experiences which make consumers think, feel, act and react are considered, and may go beyond the traditional five senses.

A New Approach for Measuring Customer Satisfaction

All the factors described above contribute to emphasising the entire consumption experience over and above the mere perception of product performance. The aim of this work is to propose a scale to measure customer satisfaction that considers, in the context of the disconfirmation paradigm, all the different stages which precede and follow product use.

We propose three versions of the same scale: for convenience, shopping, and specialty goods. All of them are of Likert type: respondents are required to declare their agreement with items on a five-point scale. Items are formulated according to a subjective approach, considering that satisfaction involves both cognitive and motivational considerations (Spreng, et al. 1996).

The steps along which the scale was developed are the following:

a. Definition of the concept to be measured and item generation.
b. Evaluation of item content validity.
c. Evaluation of scale reliability.
d. Evaluation of criterion and concept validity.

The two versions of the scale for convenience and investment goods were developed to step *b*. The scale to measure satisfaction of customers of shopping goods underwent all steps (*a* to *d*) and was administered to a sample of a branded product (jeans) purchasers.

Correlation coefficients between each of these three additional items and overall scores were, respectively, .639, .587, and .435, all significantly different from zero.

In order to investigate concept validity further, overall satisfaction was re-coded in three score categories: low ≤ 64; medium ≤ 76, and ≥ 65; and high ≥ 77 (the average value of scores in the total sample was 69,7379; the 25th percentile was 63; the median value was 71; and the 75th percentile was 77). Average scores for respondents in the three categories of the re-coded variable were compared by means of three single ANOVAs and MANOVA. Scores differed significantly across the three newly defined satisfaction levels (for MANOVA, F = 8,993, with observed significance level = 0).

Further Evidence from the Data

The scale to measure customer satisfaction with reference to the purchase of branded jeans was administered to another convenience sample of 344 respondents, students at the University of Padova and workers. Validity and reliability evaluation on this larger sample gave similar results to those obtained on the first one. Table 1 lists the average scores measured over the entire scale and on the items referring to the 5 phases constituting the consumption experience.

Table 1

Average Scores Over Entire Scale and Average Phase Scores

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Total
2.94	2.75	3.10	3.00	2.94	2.93

The highest satisfaction level was measured in phase 3 (alternatives evaluations) and the lowest score is linked to phase 2 (information collection). The difference between the highest (3,10) and lowest scores (2,75) was small, although statistically significant at a 5% level, showing that differences in satisfaction along the entire consumption experience are not so important.

Table 2

Correlation Coefficients Among Phase Scores and with the Entire Scale Score

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Total
Phase 1	1	0.423	0.369	0.280	0.205	0.545
Phase 2		1	0.350	0.453	0.416	0.746
Phase 3			1	0.435	0.524	0.738
Phase 4				1	0.497	0.755
Phase 5					1	0.784
Total						1

Table 2 lists the values of the correlation coefficients among phase scores and with the overall score. Correlation between phases is moderate, the correlation coefficients between each phase score and the overall one are higher. The first phase seems less important in determining the overall level of satisfaction.

The results shown in Tables 1 and 2 suggest verifying if there is a significant dependence between the overall satisfaction level and that declared in the various phases of the

consumption experience. It seemed interesting to examine if there is a sort of phase satisfaction or if satisfaction with reference to a consumption experience is a unique concept to be measured by all items that constitute the scale. In order to examine this research hypothesis, the latent class approach was adopted.

Latent Class Models

Latent class models are factor analysis models specific to categorical variables. They were proposed by Lazarsfeld (1950); important developments were given by Goodman (1973) and Haberman (1979), particularly with reference to estimation and goodness of fit evaluation. Hagenaars (1990) proposed a general type of latent class models including external variables, unobserved heterogeneity and structural relations among variables.

As in factor analysis, latent class models can be used to identify unobservable variables, latent variables, through a group of indicators. Latent variables may be unobservable either because of their specific nature, as in the case of customer satisfaction, or because they are affected by measurement error. The basic idea of the latent class approach is that, for each latent variable, there is a number of observable variables considered imperfect indicators of the unobservable concept.

Latent models are widely applied in the marketing research literature, especially to measure phenomena like customer satisfaction and customer loyalty (see, for example, Fornell, *et al.*, 1996; Chaundhury and Holbrook 2001; MacKenzie 2001). In most papers factor analysis models – with eventual extensions – are applied, which consider all variables involved as measured on a continuous scale. Items constituting scales to measure concepts relevant to marketing analysis are categorical and even ordinal, so that latent class models appear more suitable in this context.

Local independence is the assumption on which latent class models are based: indicators are independent conditionally on latent variables. In other words, covariance among manifest variables is due only to the relation existing between each indicator and the latent variables. The latent class model approach estimates latent variable distribution and relations with indicators using conjoint distribution of observed variables and some reasonable assumptions on the relations among indicators and latent variables. We use the following notation:

- Greek letters , α, β, etc. indicate latent variables,
- Latin capital letters, A, B, etc. indicate manifest variables,
- Latin small letters, i, j, etc. indicate variable categories,
- π indicates expected relative frequencies in a contingency table,
- p indicates observed relative frequencies in a contingency table.

Equation (1) contains, as an example, a latent class model with 1 latent variable α and $t=1,...T$, classes and 2 indicators A and B, with, respectively, $i=1,...,I$ and $j=1,...,J$ classes.

$$\pi_{ijt}^{AB\alpha} = \pi_t^{\alpha}\pi_{it}^{A\alpha}\pi_{jt}^{B\alpha} \qquad (1)$$

where $\pi_{ijt}^{AB\alpha} = P(A=i, B=j, \alpha=t)$ is the probability of observing category i on indicator A, category j on indicator B, and latent class t;

$\pi_t^{\alpha} = P(\alpha=t)$ is the probability that the unit belongs to latent class t;

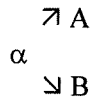
$\pi_{it}^{A\alpha} = P(A=i \mid \alpha=t)$ is the probability of observing category i on indicator A, given that the unit belongs to latent class t;

$\pi_{jt}^{B\alpha} = P(B=j \mid \alpha=t)$ is the probability of observing category j on indicator B, given that the unit belongs to latent class t.

The population is divided into T mutually exclusive classes, so that $\sum_{t=1}^{T} \pi_t^{\alpha} = 1$.

Figure 1 shows the path diagram of the latent class model in equation (1); arrows indicate direct relations among variables.

Figure 1
Path Diagram of a Latent Class Model with 1 Latent Variable and 2 Indicators



We applied latent class models to estimate customer satisfaction as an unobservable variable measured through the items composing the scale. With this approach it is also possible to validate the relations existing among the latent variables and their indicators, and thus we can verify the significance of the selected items in measuring the construct under study.

Four latent class models were estimated, all with 23 indicators, corresponding to the items constituting the scale to measure customer satisfaction, indicated by Latin capital letters from *A* to *W*. Model path diagrams are shown in Appendix B.

Model 1 contains only 1 latent variable α representing the overall satisfaction level, with 5 categories. Model 2 has 5 latent variables β, γ, δ, ε, ζ, all with 5 categories, representing satisfaction level in the 5 phases of consumption experience. For example, β represents customer satisfaction in the phase of need recognition and has two indicators, items 1 and 2 in the scale. It is also assumed that the satisfaction level in each phase is directly influenced by the satisfaction level in the preceding phase, so that causal relations among latent variables follow a first-order Markov model.

Since our sample size is modest (344 units) but many variables are observed, model goodness of fit evaluation is not possible with the usual statistics Pearson X^2 and log-likelihood ratio L^2, since their χ^2 asymptotic distribution is no longer guaranteed. In order to compare models we used index AIC (Akaike Information Criterion) which selects the model with the lowest value.

Table 3 compares estimated latent class models in terms of the values of the log-likelihood ratio L^2, number of degrees of freedom and AIC index. The model best fitting the data is model 2, with 5 latent variables and direct influence among them. This means that customer satisfaction is not a unique concept, but that in each of the five phases of the consumption experience customers express a satisfaction judgement. Satisfaction develops during the consumption experience. Another important result is that all conditional probabilities linking indicators to latent variables are statistically significant, which means that all items contribute to measuring unobservable concepts.

Table 3

Evaluation of Model Goodness of Fit

	L^2	Degrees of freedom	AIC
Model 1	14,544	2,147,483,182	15,486
Model 2	14,354	2,147,483,102	15,446
Model 3	14,430	2,147,483,162	15,402
Model 4	14,644	2,147,483,283	15,382

In order to obtain a more parsimonious model, some restrictions were imposed on the parameters of model 2. We assumed that causal links among latent variables follow a first-order stationary Markov model (model 3). A conditional test for nested models accepts these restrictions.

Lastly, we estimated a latent class model (model 4) which takes into account the fact that indicators and latent variables are measured on an ordinal scale and not simply a discrete scale. Model 4 yields similar results to those of model 2, with an even better fit. Table 4 lists the frequency distribution of the five latent variables, corresponding to satisfaction levels in the five phases of the consumption experience, estimated with final model 4. Results show that changes in satisfaction level across the consumption experience are not all negligible.

Table 4

Frequency Distribution of Latent Variables Estimated with Model 4

	Level 1	Level 2	Level 3	Level 4	Level 5
Phase 1 β	14.97	18.76	46.74	16.37	3.16
Phase 2 γ	12.31	22.78	37.71	17.67	9.53
Phase 3 δ	10.75	25.64	30.77	18.47	14.37
Phase 4 ε	9.84	27.69	25.42	18.96	18.09
Phase 5 ζ	9.30	29.16	21.30	19.28	20.96

CONCLUSION

The proposed scale shows that customer satisfaction depends not only on product performance, but also on many other aspects involved in the consumption experience, important in all stages preceding and following purchase. This evidence obviously affects the way in which customer satisfaction is measured and also marketing strategies. In order to be unbiased, customer satisfaction measures must extend the terms to which expectations and desires are compared above product performance. If customer satisfaction depends on management ability to implement marketing strategies, neglecting important satisfaction determinants in designing such strategies may result in dissatisfied customers.

The proposed three versions of the scale indicate that the consumption experience must be viewed as a complex phenomenon. Successful implementation of the scale for shopping goods also establishes good premises for positive reliability and validity evaluations for the other two scales. Possible extension of this study may verify the basic assumptions underlying many items in the three scales, i.e., if customer involvement with the product is high, the decision-making process is complex and well articulated. It may be useful, for example, to measure consumer involvement (through the scale proposed by Zaichowsky 1985) in order to evaluate whether the consumption experience is intensely perceived in all its stages. The emotional component of involvement (Zaichowsky 1986) could also be measured in the same way. Another extension of this study could be evaluation in time of the customer satisfaction construct.

Lastly, we show how latent class models are more suitable than factor analysis models to analyse data collected with measurement scales which are in many cases ordinal. Specifically, by applying latent class models we verified that customer satisfaction is not a unique concept but that, in each phase of the consumption experience, customers formulate a distinct satisfaction

judgement, and that satisfaction evolves along the entire experience, from the phase of need recognition to consumption and post-purchase evaluation. This evidence supports the need to measure customer satisfaction by considering all aspects and all stages of the consumption experience. Measurement instruments are needed which consider all aspects involved in the process along which customer satisfaction judgment is formed.

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Send Correspondence Regarding This Article To:

Francesca Bassi
University of Padova
via C. Battisti 241
35121 Padova, Italy
tel. 049-8274168
fax 049-8274170
e-mail: francesca.bassi@unipd.it

Appendix A

Scale Measuring Satisfaction of Jeans Buyers

Consider the personal experience of purchasing a pair of branded jeans with an intensive advertising campaign. Express a judgement, referring to your expectations and desires, on the following aspects related to consumption experience, according to the following scale: 1= much less than expected; 2 = less than expected; 3 = as expected; 4 = more than expected; 5 = much more than expected.

1. How the intensive advertising campaign attracted your attention to the product.
2. Product style: to what extent it follows new fashions and trends.
3. Collection of information on product manufacture through commercial sources.
4. Collection of information on aesthetic characteristics of product (line and colour) through commercial sources.
5. Collection of information on washing conditions through labels/instructions.
6. Collection of information on care and precautions to maintain colour.
7. Ability of advertisement to attract your attention (making me think or communicating sensations).
8. Sales personnel expertise on product characteristics.
9. Clearness of information contained in the label.
10. Information deduced with reference to the brand image (*e.g.*, if the brand is associated with an image of quality products).
11. Product quality estimation compared with available alternatives.
12. Presence in the product of desired qualities compared with available alternatives.
13. Brand image compared with available alternatives.
14. Estimated performance of product (wearability) compared with available alternatives.
15. Point-of-sale modernity and warmth.
16. Sales personnel helpfulness.
17. Estimated quality/price ratio.
18. Image projected by the product.
19. Price in relation with overall offer (*i.e.*, also considering warranty, brand image, etc.)
20. Product performance (wearability).
21. Confirmation of collected information.
22. Tested brand reliability
23. Capability of product of maintaining original characteristics: colour, line, dimensions, etc.
24. Product cheapness.
25. Validity of the quality certification given by the manufacturer.

Overall, to what extent do you feel satisfied with the entire consumption experience?
1=Not at all satisfied, 2=Moderately dissatisfied, 3=Neither satisfied, nor dissatisfied, 4=Moderately satisfied, 5=Very satisfied.

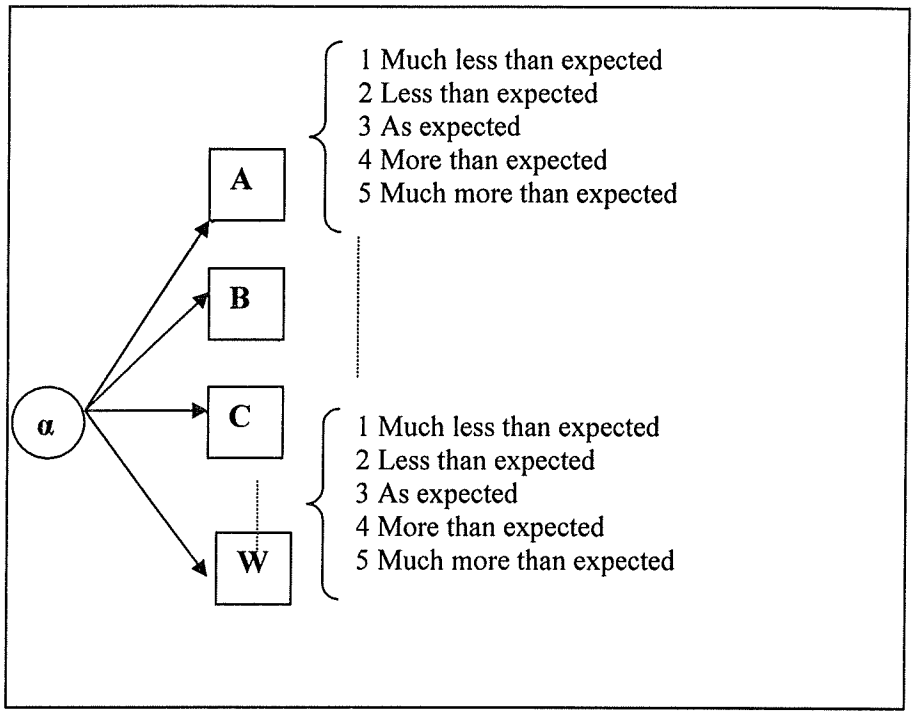
Express your degree of agreement or disagreement with the following, on a scale from 1 to 5:
1=Absolute disagreement, 2=Disagreement, 3= Neither agreement, nor disagreement, 4= Agreement, 5= Absolute agreement:

C1. I will buy the product again.
C2. I will speak well about the consumption experience.
C3. I do not have complaints about any of the aspects of the consumption experience.

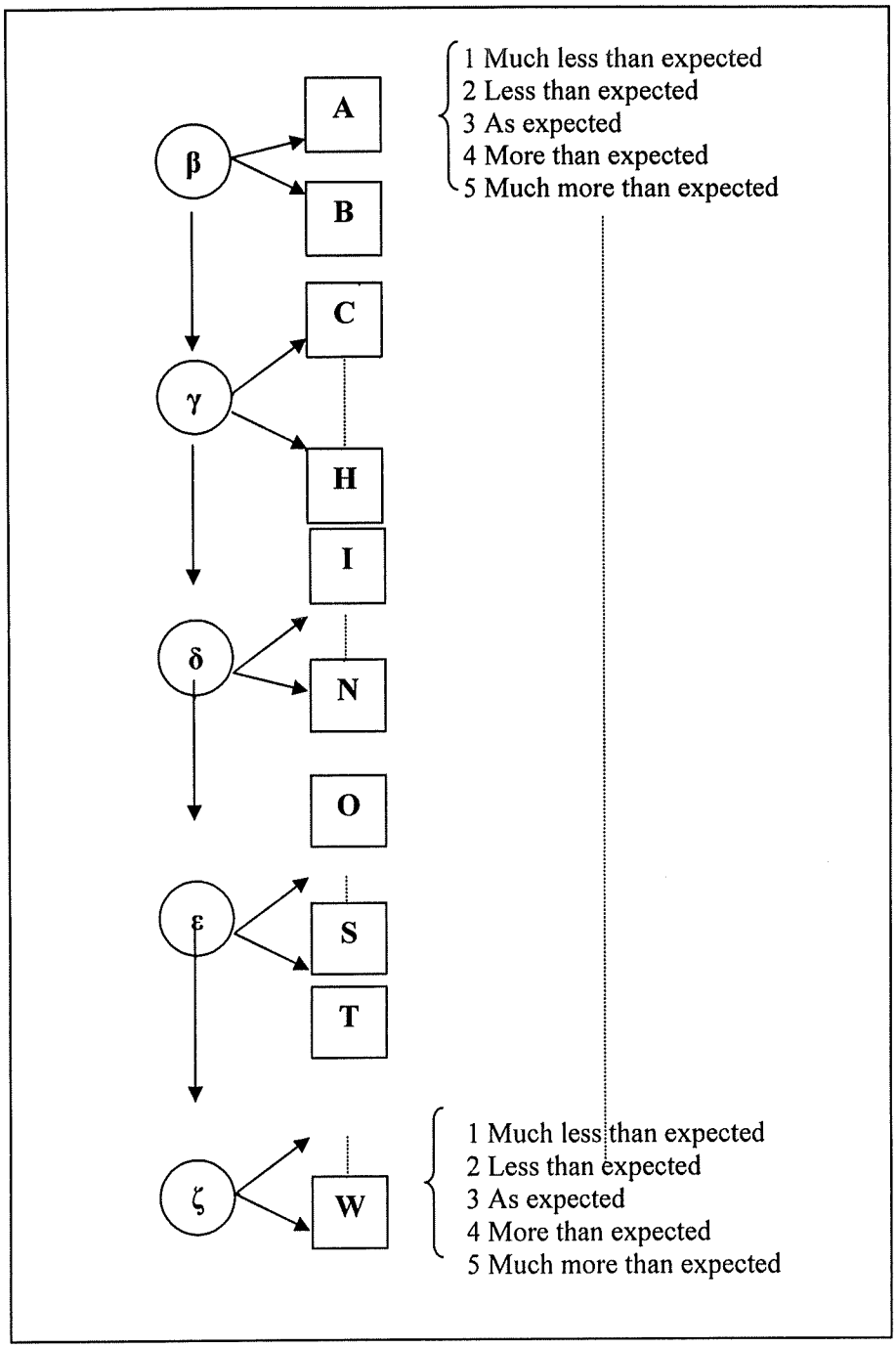
Appendix B

Latent Class Models: Path Diagrams

Model 1



Model 2


1 Much less than expected
2 Less than expected
3 As expected
4 More than expected
5 Much more than expected
A
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1 Much less than expected
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4 More than expected
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