THE IMPORTANCE OF FREE TECHNICAL SUPPORT: A NEW SCALE

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ABSTRACT

Despite the common offering of free technical support programs in the consumer goods market, little research has focused on the consumers' perspective of this benefit and the impact they have on purchase decisions. And, while these customer assistance services might be referred to as free, they are actually expensive for marketers to implement and offer. This paper seeks to highlight the need for a better understanding of the types of people, products, and situations that may lead consumers to perceive value in such free customer support programs. Such insights could enable marketers to position technical support as a competitive advantage. Specifically, this study creates and validates a six-item scale through two pretests. This new scale will allow researchers and practitioners to measure the level of importance consumers place on the offering of free technical support, thereby enabling them to make more educated decisions about when to prioritize the implementation and management of their technical support programs. Additional attention should be given regarding creative ways in which free technical support could be positioned to influence and retain consumers.

INTRODUCTION

Technical support programs are abundant in the consumer goods market, with such services being offered across most every product category, ranging from computers, cell phones, fitness equipment, and home theater systems to power tools and even toys. Although technical support programs are often touted as being free to customers, the implementation of such programs can be extremely expensive for marketers. Companies such as Dell may invest as much as twelve weeks of paid training before the support representatives even talk to the first customer (Bagga and Khanna, 2014). Despite the vast use of technical support offerings by marketers, there has been surprisingly little academic research to discover how these offerings are viewed by consumers or the impact they have on consumer decisions. Thus, the purpose of this article is to create and validate a multi-item scale by which marketers can measure the importance consumers place on the offering of free technical support that can be used for specific product categories.

LITERATURE REVIEW

Recent literature has called for academics to research ways to reposition the customer support function, an area that has historically been viewed as having little strategic significance (Sheth, Jain & Ambika, 2020). This is due partly to the fact that marketing activities such as

advertising and sales tend to focus on buyers, rather than on users. However, retaining customers is just as important to the success of businesses as is gaining them. (Kumar, Khandelwal, Mehta, Chaudhary and Bhatia, 2017). Specifically, the point is made that marketers could potentially reinvent customer support to serve as a competitive advantage instead of simply being a cost of doing business or function that is outsourced (Sheth, et al., 2020). One possibility to this end would be to frame and deliver technical support to customers as a benefit that will ensure optimal product performance, thereby increasing customer satisfaction and retention. In order to work toward such a perceptual change with customers, marketers first need to understand the attitudes consumers currently have regarding technical support. This study provides a starting point on this repositioning journey by creating a scale by which marketers can measure consumers' attitudes toward the importance of the free technical support offering.

Studies have found that the technical support experience is positively associated with ownership experience, thus stressing the importance of investing in resources to create adequate support, in order to provide customer satisfaction and foster brand loyalty (CMO Council, 2017; Kane, 2016). While the topics of customer support and customer service have received much attention in the literature for their influence on after-the-sale measures such as customer satisfaction, retention, and loyalty, (Dean, 2007; Sharma, 2012) little research has been devoted to exploring the impact technical support has, or could potentially have, on the purchase decisions of potential customers before a purchase. This type of customer assistance is not about tracking deliveries or resolving billing issues, which fall under the broader heading of customer service. It is about the availability of expert advice to help customers get the most out of their products (MacDonald, 2019). Retana, Forman & Wu (2016) found that initially educating service customers led to a more positive consumer experience as well as increased customer loyalty. Still, a review of the literature could not find a tool to adequately measure the importance consumers place on the offering of free technical support and its role in the purchase decision process. This research contributes to the marketing and consumer behavior literature by creating and validating a scale to measure the construct of the importance consumers place on free technical support for a specific purchase decision. This, in turn, will provide valuable insights for marketers who determine to understand and perhaps reshape customer attitudes in order to reposition their customer support systems as a competitive advantage.

METHODOLOGY

Since a review of the marketing literature failed to reveal an appropriate scale for measuring the level of importance one places on the offering of free help or technical assistance; one must be created in order to measure and study this construct. The general criteria for scale development provided by Churchill (1979) was used as a pattern to guide this process. First, a construct definition was established. In this case, an adequate one was borrowed from The Language Bin On-Line Dictionary, which describes something that is important as possessing value. So, this scale will seek to measure the degree of importance or value placed on the benefit of free help. The characteristic of importance should not be confused with the concept of salience, which in marketing terms, tends to refer to features that are not only considered

important by consumers, but also essential. Although it stands to reason that if something is viewed as highly important, it might also be salient. Additionally, the concept of importance does not necessarily indicate any intention to purchase or not purchase a particular product.

It might be assumed that one's perception of importance is a one-dimensional construct that could probably be measured adequately with a single, straightforward question. In fact, marketing studies have utilized single-item rating scales to determine consumers' perceptions regarding which product or service attributes are more or less important (Huang, Wu & Hsu, 2006; Mackenzie, 1986). Such studies commonly give respondents a list of several product features and simply ask them to rate each one on a scale ranging from "not important at all" to "very important." However, the need for this study is not to compare the importance of various factors with one another, but instead, is to arrive at a measurement that meaningfully depicts consumers' attitudes toward the value of the feature of free help/technical assistance. As such, measuring several items instead of only one should shore up the scale reliability by making sure the respondents display consistency in attitude for similar questions regarding this concept (Shao, 2002, p. 245).

As scales are developed, Hair et al. (2006) note the importance of maintaining objectivity within the measurement instrument. Churchill (1979) suggests that items with both positive and negative wording be included in order to avoid biasing the respondents toward a favorable or unfavorable attitude. The negatively worded items must then be reverse scored in order to keep the summated scores consistent. Similarly, it is recommended that the scales be balanced by using descriptors that provide an equal number of positive and negative choices (Hair et al., 2006, p. 374-375). In order to maintain consistency with most of the other scales used in this study, this new scale will utilize a seven-point Likert scale ranging from strongly agree to strongly disagree, with options on either side of the neutral mid-point offering slight and definite agreement/disagreement.

According to psychology literature, attitudes can be divided into three components: cognitive attitude, affective attitude, and behavioral attitude (Rosenberg, Hovland, McGuire, Abelson, and Brehm, 1960; Spooncer, 1992). Cognitive attitude includes the knowledge or beliefs one has about a concept, while the affective attitude deals with the emotional feelings regarding a concept. The behavioral component is an intended or actual course of action regarding a concept, and is generally the result of the cognitive and affective attitudes. Therefore, an initial scale to measure the attitude of importance should at least consider including each of these three dimensions.

Another facet of the free help feature that should be considered concerns the public perception of such services. Perhaps poor service and inadequate use of communication tools such as phone systems, E-mail, Web-sites and chat features have become so common that many customers expect frustration rather than help when requesting assistance from the providers of products and services. So, the first two items on this initial scale focus on the useful, personal attention aspect of free help, rather than on the terms "free help" and "technical assistance," which may carry a poor image with some consumers. See Table 1 for a list of the initial items and scale descriptors included in this scale.

Although a multi-item scale has never been developed for measuring the perceived importance of free technical support, Luhtanen and Crocker (1992) did validate a four-item scale for measuring the importance of group membership to an individual. Items nine and ten were borrowed from them and were slightly amended in order to measure the importance of free help. However, the other two items from Luhtanen and Crocker (1992) were not included because their wording was irrelevant to this study. Items 11 and 12, respectively, framed negative and positive statements that were created to be extremely short and direct. This initial quantity of items is consistent with similar scale development studies (Flynn et al., 1996).

Table 1

	Original Scale Items to Measure the Importance of Free Help / Technical Assistance
Personal Attention	**I believe it will be important for me to have a knowledgeable person available to answer my questions as I learn to use the features of my new digital camera.** Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree
Personal Attention (neg framed)	**I don't need a camera expert to be available to answer my questions or offer advice about how to best use my new digital camera.** Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree
Cognitive	**It would be an important benefit for me be able to get free help from the camera company about problems I might have using the various features of my new camera.** Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree
Cognitive (neg framed)	**I don't think that the benefit of free help or technical assistance for a new digital camera is very important.** Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree
Affective	**I feel that "free technical assistance" would be a valuable service to have with a new digital camera.** Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree
Affective (neg framed)	**I don't care if the camera I choose comes with free help.** Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree
Behavioral	**I would be more likely to purchase a particular camera if I knew it came with free help as a feature.** Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree
Behavioral (neg framed)	**The benefit of free help would not influence my decision of which camera to buy.** Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree
(neg framed)	**Overall, the benefit of free help or technical support has little to do with how I feel about a digital camera.** Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree
	In general, free help/technical support is an important feature for a digital camera. Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree
(neg framed)	**It doesn't matter if a digital camera comes with free help.** Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree
	It is important for a digital camera to include free technical assistance. Strongly Agree 1 2 3 4 5 6 7 Strongly Disagree

Pretest 1

Two pretests were performed in order to validate and purify the new scale for measuring the importance of free help. First, an assessment of the instrument was conducted by two Ph.D., marketing professors to help ensure face validity. Also, two college students examined the items for clarity. The input of both the instructors and students led to several changes in the wording of the items. This specific approach was borrowed from Laroche et al. (2003). Placing sample members in a hypothetical scenario is a practice that is widely used in research because it provides a degree of situational consistency for all the respondents (Duhan et al., 1997). The context of this study created a purchase situation for a new, digital camera for personal use. This scenario was selected primarily because it presented a realistic purchase decision task for most of the respondents. The purchase scenario (See Chart 1) was distributed to a convenience sample of 40 students (21 female, 19 male) in two upper division business classes with the following instructions:

> You have decided to purchase a quality digital camera for personal use, which you will trust to help you capture, preserve, and share your memories over the next several years of your life. You have ruled out the cheapest cameras with unfamiliar brand names, as well as the most expensive "professional" cameras, which are very pricey and offer more gadgets than you could ever use. However, you do want the latest in technology. You have compiled a list of features for the following nine cameras, which are marketed by different, but equally well-known and respected companies. Now, you are finally ready to choose the digital camera you will purchase from these nine alternatives. Please review the following information you have collected about these camera options and features as you consider making your purchase decision.

After these students had taken about a minute to begin processing the scenario, they were given a copy of the "importance of free help" scale (Table 1) to complete at that point, even though they likely had not made a final decision. The purpose of the scenario was to have them engaged in the purchasing process, not necessarily to arrive at a decision. The following information was included in order to ensure that respondents understood the camera feature described as free help:

> It is very common today for companies to offer product support services to their customers at no additional cost. This service is available to customers after they have purchased the product in order to answer questions and resolve problems regarding product usage and to help product owners get the most out of their purchase. Toll-free support lines and online instant chats with a professional technician are examples. The terms "free help, technical assistance, and support" will be used interchangeably in this survey to refer to this type of product feature. Although free technical assistance is not specifically listed as a feature for any of the cameras you have been given to consider, it is included on some of the models.

Chart 1

Camera Option 1	Camera Option 2	Camera Option 3
Price: $200	Price: $299.95	Price: $230
3.34 Megapixels	Includes 1 Rechargeable Lithium Battery	4.0 Megapixels
MPEG Video Clip Format	32 MB Memory Card	Self Timer with 2 to 10 Second Delay
Includes 2 Rechargeable AA Batteries	MPEG Video Clip Format	2" Color LCD
Self Timer with 10 Second Delay	6.1 Megapixels	Auto/Manual Flash Modes
Compact Design	Auto/Manual Flash Modes	16 MB Memory Card
3X Optical & 4X Digital Zoom	Camera Case with Strap	3X Optical & 3.6X Digital Zoom
1.6" Color LCD	1.8" Color LCD	Adaptive Lighting Technology
16 MB Memory Card	3X Optical & 4X Digital Zoom	Includes 1 Rechargeable Lithium Battery
Auto/Manual Flash Modes	Red-Eye Elimination	Red-Eye Elimination

Camera Option 4	Camera Option 5	Camera Option 6
Price: $371.97	Price: $160.95	Price: $256.98
32 MB Memory Card	16 MB Memory Card	Shutter Speed .0005 to .25 Sec.
12X Optical & 4X Digital Zoom	3.0 Megapixels	Pocket Compact Design
Date/Time Stamp	3X Optical Zoom	6X Optical Zoom
Auto/Manual Flash Modes	Auto/Manual Flash Modes	Includes 1 Rechargeable Lithium Battery
Camera Case with Strap	Compact Design	Auto/Manual Flash Modes
4.0 Megapixels	Includes 2 AA Alkaline Batteries	Photo Editing Software
1.5" Color LCD	Red-Eye Elimination	5.1 Megapixels
Panoramic View Feature	1.6" Color LCD	16 MB Memory Card
Red-Eye Elimination	Self Timer with 15 Second Delay	1.5" Color LCD

Camera Option 7	Camera Option 8	Camera Option 9
Price: $396	Price: $179	Price: $339.99
2.5" Color LCD	4X Optical Zoom	Shutter Speed .001 to 4 Sec.
25 MB Memory Card	Shutter Speed .0005 to 15 Sec.	2" Color LCD
3X Optical & 5X Digital Zoom	16 MB Memory Card	16 MB Memory Card
Auto/Manual Flash Modes	Date/Time Stamp	Panoramic View Feature
Includes 1 Rechargeable Lithium Battery	1.8" Color LCD	Red-Eye Elimination
MPEG Video Clip Format	Photo Editing Software	Self Timer with 10 Second Delay
Photo Editing Software	3.3 Megapixels	3X Optical & 10X Digital Zoom
8.3 Megapixels	Auto/Manual Flash Modes	Auto/Manual Flash Modes
Red-Eye Elimination	Camera Case with Strap	6.3 Megapixels

The scale results were analyzed for internal consistency by calculating Cronbach's Alpha, which produced an acceptable coefficient rating of .791, and the SPSS output suggested that this alpha would be improved if item nine was deleted (Cronbach, 1951; Hair et al., 2006, p. 374). Also, the Kaiser-Meyer-Olkin statistic of .675 indicated that factor analysis would be an appropriate means of data analysis for these twelve scale items (Garson, 2006a). Therefore, two exploratory factor analyses, one with VERIMAX rotation and another with oblique rotation were run, and both produced consistent groupings and further supported the argument for omitting item nine by identifying it as the only item with a significant cross-loading (Hair et al., 2006, p. 130). Both factor analyses also isolated item two as a problematic single-item factor. These items were reviewed and found to offer no unique insight into the construct; therefore, items two and nine were eliminated, resulting in an improved internal reliability of .83. The remaining ten items would be further scrutinized with a second pretest (see Table 2).

Another important step in validating a new scale is the comparison of its measurements with those of other established scales in order to make sure it behaves as theory suggests it should (Churchill, 1979; Hair et al., 2006, p. 355-356). Pretest results should be compared with other scales that measure similar or related constructs. Significant correlations will indicate that

the new scale performs as expected, thus demonstrating convergent or nomological validity. Likewise, low correlations or insignificant relationships with constructs that are considered to be different will verify discriminant validity of the new scale.

To test for convergent validity, the relationship between the new, importance scale and a previously utilized scale measuring purchase intentions was analyzed. It is logical to theorize that a higher degree of perceived importance regarding a particular benefit would be positively related to one's intention to buy the product that delivers that benefit. Therefore, it is not surprising that research has already substantiated the existence of this positive association (Kim & Kim, 2004). Specifically, they found that the more important a particular shopping attribute was rated, the more likely it was to produce a strong intent to purchase. Their (2004) study followed the common practice of measuring purchase intention with a single-item scale asking the respondent to rate how likely or unlikely she is to purchase a particular item (Machleit & Wilson, 1998). However, this study borrowed a two-item, purchase intention scale that was utilized by Lee (2005) as part of the scenario. SPSS was used to calculate Pearson's correlation coefficient and found that the new scale measuring the importance of free help was positively associated with purchase intentions, thus supporting convergent and nomological validity ($r =$ .44, alpha = .01, two-tailed). Note, however, that the correlation was not strong enough to indicate that these two scales might actually measure the same concept, thus maintaining a distinction between the two (Churchill, 1979).

Table 2		
Revised Scale Items to Measure the Importance of Free Help / Technical Assistance in Second Pretest		
I believe it will be important for me to have a knowledgeable person available to answer my questions as I learn to use the features of my new digital camera.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
It would be an important benefit for me be able to get free help from the camera company about problems I might have using the various features of my new camera.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
I don't think that the benefit of free help or technical assistance for a new digital camera is very important.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
I feel that "free technical assistance" would be a valuable service to have with a new digital camera.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
I don't care if the camera I choose comes with free help.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
I would be more likely to purchase a particular camera if I knew it came with free help as a feature.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
The benefit of free help would not influence my decision of which camera to buy.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
In general, free help/technical support is an important feature for a digital camera.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
It doesn't matter if a digital camera comes with free help.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
It is important for a digital camera to include free technical assistance.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree

While the constructs that imply convergent and discriminant validity may point toward nomological validity, the concept of subjective or self-assessed product class knowledge was chosen specifically for this purpose. This tests whether or not the scale "makes accurate predictions of other concepts" as theory would expect (Hair et al., 2006, p. 137-138). Defined as "an individual's perception of how much he or she knows" about a specific product category, the idea of subjective product class knowledge is easily distinguished from the concept of the importance of free technical support (Brucks, 1985). Although these variables are dissimilar, there is certainly reason to theorize that they should be negatively correlated. Brucks (1985) found that people with higher degrees of subjective product knowledge tend to rely more on their own product judgments and less on the opinions of others; even others that might be considered experts. This makes sense because those who feel they already know a lot about a product category would probably consider themselves to be experts and are, therefore, both confident in their own capacities to make product related decisions and doubtful that someone else would have new, helpful information of which they are unaware.

Using this same line of reasoning, Gilly et al. (1998) incorporated Brucks' (1985) scale of subjective knowledge into their study as a measure of product class expertise. Since free technical assistance primarily carries the benefit of having an expert available to answer questions and offer advice, it seems logical to theorize that such a feature might not be deemed important by those who believe themselves to be experts. However, those who feel they lack product class knowledge would likely view the availability of professional assistance as a more valuable benefit. Thus, a negative correlation between the importance of free help and subjective knowledge would be predicted, and such a finding would help substantiate the nomological validity of this new scale. This study borrowed Brucks' (1985) two-item scale for subjective product class knowledge, which originally demonstrated a high coefficient alpha of .91. Rather than assuming the Likert format, this is a semantic differential scale; however, the seven point scale choices serve to maintain a certain degree of consistency with the other survey instruments. The negative association found in the first pretest data also support nomological validity for the new importance of free help scale (r = - .34, significance = .05, two-tailed).

Pretest 2

The second pretest to validate the importance of the free help scale was conducted in similar fashion to the first one; however, since it was during the summer, the number of student participants available was only 30 (17 males, 12 females, 1 undisclosed). The purified, ten-item scale derived from the first pretest produced an improved Cronbach's alpha of .95 in the second pretest, and SPSS showed that no single item elimination would significantly improve internal reliability (Cronbach, 1951; Hair et al., 2006, p. 374). And, for this pretest, an additional single-item, seven-point rating scale for measuring feature importance was included to further assess convergent validity (1 = very important, 7 = very unimportant). This item was adapted from Kim and Kim (2004) and was worded as follows: How important is it to you that a digital camera include the feature of free technical support? Since these two scales are intended to measure the same basic concept, the strong, positive correlation substantiates convergent validity

for the new scale (r = .75, p < .01, two-tailed).   And the negative relationship between importance of free help and subjective product class knowledge was observed once more, thereby supporting nomological validity (r = -.52, p < .01, two-tailed).   An improved Kaiser-Meyer-Olkin statistic of .89 confirmed the suitability of the data for factor analysis (Garson, 2006a). Thus, two more exploratory factor analyses were run, one with VERIMAX rotation and another with oblique rotation. Both produced solutions with all ten importance items loading onto a single factor, thereby indicating unidimensionality and suggesting that all ten items could be merged into a single, summated scale (Hair et al., 2006, p. 135-136).

Final Scale

The results of these two pretests suggest that this new, ten-item scale possesses the features of reliability and validity required for use in research (Churchill, 1979). However, there was a concern that the apparent similarity of some of the questions might annoy the participants and produce some respondent fatigue.   Therefore, a final step was taken with the goal of reducing the number of scale item from ten to about five or six; a number that would be more consistent with many previously validated marketing scales used for measuring unidimensional constructs. For this task, a step-wise regression was conducted, which utilized the summated scale results for the importance of free help variable, with each of the ten scale items serving as predictors (Garson, 2006b). This test suggested that a significant R^2 of .993 and a Cronbach's alpha of .93 could be maintained while eliminating items one, two, five, and ten from the scale. The various purification and validation processes utilized in these two pretests produced a final, six-item scale, which will be used to measure the importance of free help for this study (see Table 3). Note that three positively and three negatively phrased items were retained.

Table 3
Final Six-Item Scale to Measure the Importance of Free Help / Technical Assistance

I don't think that the benefit of free help or technical assistance for a new digital camera is very important.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree

I feel that "free technical assistance" would be a valuable service to have with a new digital camera.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree

I would be more likely to purchase a particular camera if I knew it came with free help as a feature.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree

The benefit of free help would not influence my decision of which camera to buy.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree

In general, free help/technical support is an important feature for a digital camera.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree

It doesn't matter if a digital camera comes with free help.		
Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree

DISCUSSION & FUTURE RESEARCH

Little research has been conducted regarding the construct of free technical support in the consumer goods market. This topic certainly deserves some attention because an effective customer assistance program could be quite expensive to operate, while an ineffective one could quickly lead to problems with customer dissatisfaction. Thus, marketers need a better understanding of what types of individuals, products, and situations facilitate a perception of value in the feature of free help in order to develop and promote more effective assistance programs. This study has created and validated a six-item scale that will enable marketers to measure the level of importance consumers place on the free support benefit. In turn, practitioners may now be able to prioritize and allocate resources toward technical support programs from an informed viewpoint, rather than making such determinations based on a hunch.

Though significant, this step is only the beginning of a promising, new stream of research. Additional work needs to be done in order to build a theoretical framework regarding

the types of people, products, and situations that lead the offering of free technical support to be perceived as more or less important to consumers as they make purchase decisions.

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