

# Review of Definition “Consumer Experience” and its Qualities

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**Abstract.** A product, service consumer experience qualities were reviewed, definition “consumer experience”, concept definition of this term and the proposed term rationale were proposed; the consumer experience documenting form within the web environment and subjective information demand reasons, in particular, the consumer experience, were reviewed. Web forums, as the subjective information accumulation environment, social and communicative properties of the web forums and informative parts of their participants in the consumer experience exchange were studied. Technical structure of the web forum information content was reviewed for its compliance with structure of communication process between the web forum participants. It was learned that the technical structure reflects data base structure only and it may not be utilized for analysis of the communication process between the web forum participants. In order to build a model, the communication structure of the web forum information content was studied. Such communication structure units, as topic situation and atomic situation, were implemented and formalized, their distinction principles in discussion were established that allowed to esteem the web forum information content in terms of communication put into a text form. A communication structure model of the web forum information content was made that enabled the discussion text investigation by communicative constituents for subsequent processing to detect the consumer experience. The consumer experience model was created in the web forum information content, based on the consumer experience structure that made it possible to make the consumer experience expression construction models.

**Keywords:** web environment, consumer experience, communication process

## 1 Introduction

By definition [11], experience is a person’s body of knowledge, skills gained throughout life, in practice.

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Nowadays, we more often deal with a consumer intercommunication experience for particular subject or phenomenon (for instance, service) in modern consumer-related society. The consumer gains particular knowledge, skills in the course of use, consumption, analysis, observation etc. concerning the subject or phenomenon. Based on such knowledge, consumers, for example, review advantages/ deficiencies of particular household appliance model, recommend selection of text books to learn foreign language, describe a device particular model operation features in actual situations, make video instructions on “knowledge map” development in Mindjet MindManager Pro etc. Therefore, further particular product or service handling experience gained by their consumers, shall be defined as the consumer experience (CE).

The consumer experience is subjective, i.e. pertaining to a subject, person. It is generated individually for each consumer that is determined by various circumstances and conditions affecting the person, and, by various circumstances and conditions, under which such experience is generated, respectively, for example, cooking art, requirements set up for the household appliance, language competence level etc. Correspondingly, the consumer experience generated by each person is a unique one, even, when it pertains to the same dish, household appliance of the same model, text book etc.

The experience may regard with both simple household matters and sophisticated and knowledge-based processes, nevertheless it is valuable, so as it is exclusive by its origin and may not be gained otherwise, than in interaction with ambient environment subjects or phenomena throughout life and in practice.

In other words, the consumer experience is an exclusive valuable knowledge, which may be gained through product operation and service consumption.

## **2 Related Works**

Study of such subjective information as the consumer experience within the web is possible, provided that is documented in a particular form. The consumer experience within the web is implemented in the form of multimedia materials, such as video and audio files, flash, animation, picture etc. However, such consumer experience documenting form as text, within the web predominates. The consumer experience documenting text form predominance over multimedia is explained by the series of reasons.

Firstly, minimum technical skills, actually text processing program proficiency is required for the consumer experience documenting in the text form, comparing to the multimedia form. Besides, the most of the text processing programs, versus software for making and processing of multimedia materials, is free, available software and are included into the standard program package that enables their operation.

Secondly, in spite of the implementation technical simplicity, text remains the most available and popular method of information accumulation. The text information content may be to a greater or lesser extent expressly interpreted and understood, it needs no additional review means, it is the easiest to be revised etc. Simplicity and ease in the text handling stipulated the text predominance among other web information content types.

Only the consumer experience documented in the text form is studied by the thesis, so as communication interaction between the participants on the web forum is implemented in this very form.

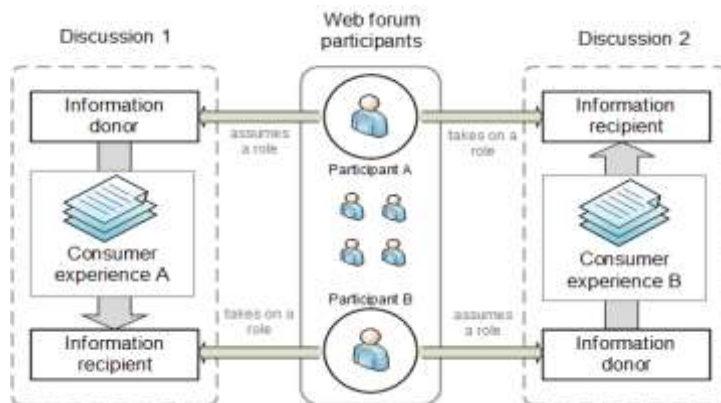
### 3 The consumer experience documenting forms within the web environment

In consideration of the consumer experience exchange we will outline such two roles of community participants: information donor and information recipient.

The information donor is the web community participant with constructive responsive behaviour, intending to provide its own experience or opinion regarding particular items, situations etc. for sharing with other community participants.

The information recipient is the participant or visitor of the web community with constructive initiating behaviour, which is interested in obtaining information about the community participant experience regarding particular items, situations etc. Both the community participants and outside parties got into the forum, for example, upon query within a search system, may be the information recipients.

The community participants may have either strictly defined roles or take one of the roles depending on information needs (Fig. 1). Thus, in one discussion the participant may be the information recipient and in another one, the information donor. On help desk forums, for example, the donor (a consulting specialist) and the recipient (a user with need of specific advice) may not exchange their roles.



**Fig. 1.** Change of roles in consumer experience exchange in the web forum discussions

The information sharing, in particular, the participant personal experience, is implemented as discussions. The primary recipient of the discussion sets a subject, and puts it in such a manner to meet the initiator's information needs. The discussion is developed by the participants intending to provide particular information. Minimum number of the discussion participants is such discussion participant number, when they do not lose interest in the discussion. Taking into account the experience exchange, to

meet the discussion initiator's information needs, often one participant is enough to provide the information required by the initiator. A target level of the initiator's information need meeting depends on the donor(-s) competence and/or experience.

Not only information donors may join the discussion expansion process, but also other information recipients, except for the primary one. Secondary information recipients are interested in the discussion initial subject, but besides this, they have own goal to obtain additional or incident information. Therefore, the discussion initial subject may evolve into a derivative one.

Number of the derivative subjects of the discussion is not limited and depends on relevance of issues concerned and the discussion participant activity. A pending subject arouses a great interest, much conflicting information appears, antagonistic moods manifest etc. that attracts a broad audience interested, so the discussion strength and dynamics remains great, unless excitement and spirited discussion subsides.

Traffic for particular online community indirectly affects the forum page rank in search systems. Heavy traffic of the online community page enhances probability that a new participant will join by a relevant query in the search system, which will commence a derivative topic within the discussion and will become the secondary information recipient. Existing community participants may also be the secondary recipients, whose information needs are the same as the initial recipient's ones. Such community participants will be named evident secondary recipients, when they stated in the discussion their concernment with the initial subject, and unobvious secondary recipients, when the recipient gained information profit, but the community received no feedback.

Thus, the communication process within the web forums is agile for subject change, open for participation and oriented to meet each participant's needs.

## **4 Communication structuring model for the web forum information content**

### **4.1 Analysis of communication structure of the web forum information content**

Difference between technical and communication structures of the web forum information content is reasoned by that the communication structure reflects online communication expansion between the participants, while the technical structure reflects technical implementation. The difference between these two structures show such hierarchical layers, where communication interaction is recorded between the participants, specifically on the forum thread and communication level. Therefore, the communication structure review will be started with the forum thread level.

The forum thread is initiated by one of the community participants with a particular information need. The initiator creates a new thread in appropriate topic section of the forum, indicating the thread topic and sharing the first communication. The thread

topic and communication content is set out by the initiator in such a manner to direct the communication to its information need meeting. A topic situation is an important element of the communication structure and basic element to detect the consumer experience. Definition “topic situation” is brought in.

The topic situation is the forum thread fragment comprising the posts related by topics.

The related posts are the posts targeted to meet the information need expressed in the communication commencing the discussion. For example, when the communication initiator is interested in outstanding Lviv tourist spots, then the posts intentionally related will contain advice for the spots worth travellers’ attention, description or experience for visits of Lviv tourist spots etc.

The posts related by topic pertain to such topic or item declared by the communication or incident subject. The web forum thread within the communication structure comprises one or more **topic situations**:

$$Thread_i = \{ThemSit_{ij}\}_{j=1}^{N^{ThemSit}(Thread_i)}, \quad (1)$$

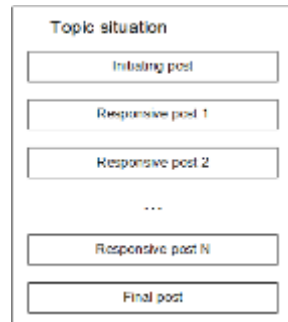
where  $Thread_i$  – web forum thread;

$ThemSit_{ij}$  – topic situation within the web forum thread;

$N^{ThemSit}(Thread_i)$  – number of topic situations within this thread.

The inception of the initial topic situation is the first communication within the web forum thread.

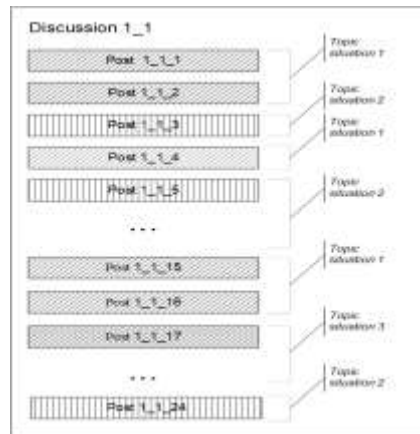
By role in the communication interaction expansion between the participants and consequence of their appearance within the topic situation such posts are defined as follows (Picture 2):



**Fig. 2.** Types of posts within topic situation

- **initiating** – posts commencing the topic situation and driving the discussion,
- **responsive** – posts extending the topic situation and constituting other participants’ response to previous posts, and
- **final** – posts evidencing the topic situation accomplishment.

The topic situation is not defined in terms of construction, i.e. has no visual and technical means of distinction (Picture 3). To define limits of the topic situations is complicated and sometimes extreme complicated task, when the thread scope is significant and the discussion subject is to sufficient extent, general.



**Fig. 3.** Place of the topic situation in information content structure

Making of a new topic situation takes place, when the discussion subject-matter changes within a current topic situation. However, the posts pertaining to the same topic situation may be placed within the thread inconsistently, be broken by posts from other topic situations. Such visual inconsistency of communication placement is the web forum online communication feature, so as return back to the discussion in particular topic situation may take place at any moment. Consequently, the post pertaining to the initial topic situation may be visually placed among the posts related to the second, third etc. topic situations.

The main reasons for return to the discussion within the particular topic situation are as follows:

- topic reupdating;
- a new participant appearance.

In the first case, the discussion being inactive (new posts did not appear), may be reupdated again, when the topic becomes again pending for the discussion participants. In the second case, appearance of the new participant wishing to demonstrate its opinion concerning the discussion topic within the topic situation, may cause repetitive discussion updating.

Sometimes, return back to the discussion within the topic situation is not in question, therefore it is not justified. The pattern of unjustified return to the discussion is information concerning any public event, for example, concert already held, in such a case, when the initiating communication pertained to time and place of their holding.

Tracing of returns back to the discussion in particular topic situation is enough effective method to detect trending public topics.

As studies show, the topic situation is not always accomplished by a final post. The most commonly, the final communication belongs to the initiator of such initiating communication and evidences that it implemented own information need. However, the initiators not always put final posts online. So the topic situation is considered exhausted, when no new posts intentionally related by topic, do not appear concerning the initiating communication.

For fundamental review of the communication place within the topic situation and its structure definition “**atomic situation**” is brought in.

The atomic situation constitutes the communication part, which is comprised into a single topic situation. The communication consists of one or more atomic situations. The communication will be marked as follows:

$$Post_{ij} = \{AtmSit_{ijk}\}_{k=1}^{N^{AtmSit}(Post_{ij})}, \quad (2)$$

where  $AtmSit_{ijk}$  – atomic situation in post  $Post_{ij}$ ;

$N^{AtmSit}(Post_{ij})$  – number of atomic situations within the  $Post_{ij}$ .

To identify links between the atomic situations, such linguistic tools used by the discussion participants are applied, in order to indicate addressing the topic or initiator, which the post /post part pertains to. These linguistic tools serve a mean to a communication chain formation.

The post division to atomic situations allows to describe the topic situation structure with no post link, which may simultaneously be comprised into more than one topic situation. The topic situation structure is to be set out as follows:

$$ThemSit_{ij} = \{AtmSit_{ijk}\}_{k=1}^{N^{AtmSit}(ThemSit_{ij})}, \quad (3)$$

where  $AtmSit_{ijk}$  – atomic situation;

$N^{AtmSit}(ThemSit_{ij})$  – number of atomic situations within the topic situation.

Based on the communication structure review for the web forum information content, such structure model will be made, as set out in the next section.

#### 4.2 Formal model of the communication structure of the web forum information content

The discussion exclusively contains profound information content comprising multiple topic situations, each pertaining a particular aspect of the topic:

$$Discussion_i = \{ThemSit_{ij}\}_{j=1}^{N^{Aspect}}, \quad (4)$$

where  $Discussion_i$  – particular topic discussion,

$\{ThemSit_{ij}\}_{j=1}^{N^{Aspect}}$  – multiple topic situations covered by the discussion,

$N^{Aspect}$  – number of aspects of the discussion topic.

Essence and essence class of particular subject area is the discussion topic. The discussion topic is to be indicated in the discussion heading. A topic aspect constitutes the discussion topic, this is a separate essence from the essence class or relation between such essences. Each aspect is considered within individual topic situation and indicated in the initiating post.

The topic situation model itemized:

$$ThemSit_{ij} = \langle ThreadHeading_i, TopicAspect_j, Author_{ij}, Date_{ij}, Content_{ij} \rangle, \quad (5)$$

where  $ThemSit_{ij}$  – topic situation belonging to  $i$ -discussion and pertaining to  $j$ -aspect;

$ThreadHeading_i$  – heading of  $i$ -discussion comprising a topic situation reviewed;

$TopicAspect_j$  – topic aspect, a constituent of the discussion topic;

$Author_{ij}$  – author of the initiating post of the topic situation, one of the web forum participants;

$Date_{ij}$  – date of the topic situation making, which is identical with the initiating post date;

$Content_{ij}$  – the topic situation content in hypertext format described as all multiple atomic situations comprised by this topic situation:

$$Content_{ij} = \{AtmSit_{ijk}\}_{k=1}^{N^{Reactions}}, \quad (6)$$

where  $\{AtmSit_{ijk}\}_{k=1}^{N^{Reactions}}$  – multiple atomic situations belonging to the topic situation content;

$N^{Reactions}$  – number of remarks concerning the topic particular aspect.

When the discussion does not address any of the topic aspects, then the topic situation content will be blank for this aspect:  $Content_{ij} = \emptyset$ .

The atomic situation will be set out as follows:

$$AtmSit_{ijk} = \langle Author_{ijk}, Date_{ijk}, TextPart_{ijk}, Reference_{ijk} \rangle, \quad (7)$$

where  $AtmSit_{ijk}$  –  $k$ -atomic situation within  $j$ -discussion;

$Author_{ijk}$  – author of the atomic situation, i.e. the author of the post, a part of which the atomic situation is;

$Date_{ijk}$  – date of the atomic situation making, i.e. date of the post, a part of which the atomic situation is;

$TextPart_{ijk}$  – post text part highlighted by reference;

$Reference_{ijk}$  – reference to the atomic situation related.

The initiating post consists of a single atomic situation. The initiating post and the atomic situation, respectively, may contain the reference to no other atomic situation, so as commences the topic situation. Therefore, the reference within such atomic situation is addressed to the atomic situation alone.

Thus, (4) - (7) make the communication structure model for the web forum information content.



## 5 Consumer experience model making within the web forum information content

Expression of the consumer experience within the web forum information content is such atomic situation, text of which contains opinions, fact statements and context statements concerning the object.

Definition “statement” is to be explained. Every information layer forming the consumer experience has a language implementation. The language implementation (verbalization) of the information layer independent element is named the statement. Therefore, the evaluative comments are verbalized by evaluative comment statements, empirical fact layer - by the fact statement etc. within the web forum information content.

Within the general consumer experience statement model, the information layer existence in the consumer experience statement is defined by its sign, therefore, *OS* – opinion layer sign, *FS* – fact layer sign and *CS* – context layer sign.

Whereas the information layers are implemented into the web forum information content by statements, their presence may be detected, based on particular language units comprised, which to be named **marks**. In operation, we propose to detect presence of appropriate statements within the atomic situation text under such statement particular marks.

Therefore, the consumer experience within the web forum information content is as follows:

$$ConsumExperience = \{AtmSit_i | OpMark_i = 1, FaMark_i = 1, CoMark_i = 1\}, \quad (8)$$

where *ConsumExperience* – consumer experience;

*AtmSit<sub>i</sub>* – *i*-atomic situation;

*OpMark<sub>i</sub>* – existence of at least one mark of opinion for *i*- atomic situation;

*FaMark<sub>i</sub>* – existence of at least one mark of fact statement for *i*- atomic situation;

*CoMark* – existence of at least one mark of context statement for *i*- atomic situation.

However, in a live situation the atomic situation texts, except for the consumer experience statement, mainly contain any “needless” text yet that is not the consumer experience opinion. To delete the atomic situation needless text, the consumer experience expansion operator (*EEO*) is applied. The operator distinguishes the consumer experience unit from the atomic situation text. Subsequently, the atomic situation transforms into the experience atomic situation:

$$EEO: AtmSitText \rightarrow ExperienceExp$$

$$EEO: AtmSit \rightarrow AtmSitExp$$

*EEO* operator – is one of the text analytical-synthetic processing methods. Such methods comprise as follows:

- cutting off – text length limitation, disregarding the text part, which does not contain the consumer experience attributes;

- citation – word-for-word reproduction of the text fragment containing the consumer experience statement attributes;
- summary – maximum short summary of the atomic situation content, which consist of identification of essential backbone word forms, summary text set out of such word forms with addition of a relator expression at the beginning;
- reviewing – summary of the atomic situation content produced, based on essential and secondary backbone word forms and their lexical-semantic links;
- extractive summarization – report making, based on the atomic situation text fragments selection and combination.

The information condensing methods are profoundly processed both in theoretical and in practical aspects in papers, application software are developed for text analytical-synthetic processing, such as TextReferrent, TextAnalyst 2.0.

The outcome of the analytical-synthetic processing is the experience atomic situation with the same structure, as the consumer experience opinions:

$$AtmSitExp_i = \langle Agent_i, OpinionExp_i, FactExp_i, ContextExp_i, Object_i \rangle. \quad (9)$$

We give definition of consumer experience within the web forum structure.

The consumer experience within the web forum information content is multiple experience atomic situations:

$$ConsumExperience = \{AtmSitExp_i\}_{i=1}^{N^{AtmSit}}, \quad (10)$$

where *ConsumExperience* – consumer experience;

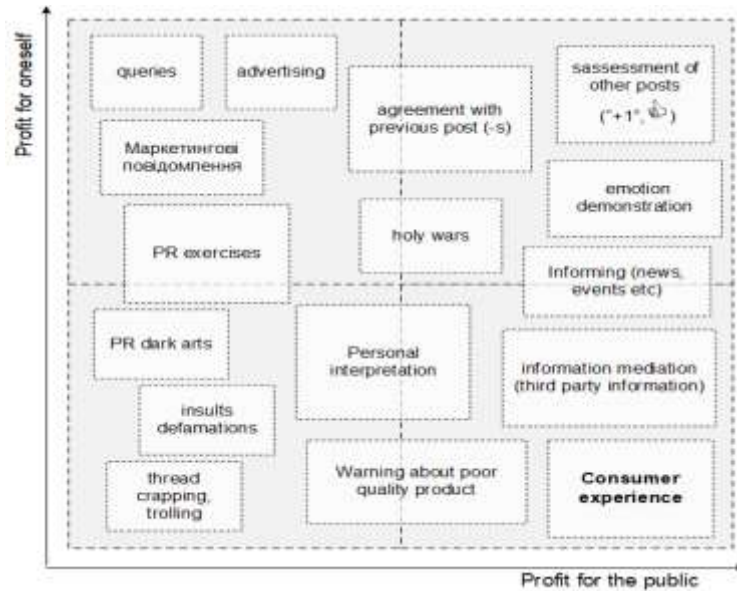
*AtmSitExp<sub>i</sub>* – experience *i*-atomic situation;

*N<sup>AtmSit</sup>* – number of atomic situations, of which the experience atomic situations are distinguished.

Thus, correlations (8) – (10) make the consumer experience model within the web forum information content.

Based on the developed formal model and with application of Google profound search queries, it is determined that the community participant motivation intention stipulates particular information product posted by the participant (Picture 4).

As it seen from Picture 4, the consumer experience is the product of motivation intention “to help”. For purposes of the motivation constituents, the consumer experience is characterized by a high level of profit for the public and low level of profit for oneself, especially in those cases, when the consumer experience of the information donor was negative (device failure, poor quality service). In such cases the main motivation intention of the information donor is warning of the information recipients against the same negative consumer experience.



**Fig. 4.** Information products of various motivation intentions

Based on the distinguished motivation qualities of the consumer experience (high level of profit for the public and low level of profit for oneself), the consumer experience may be distinguished among other information products and, that is the most important, the undercover marketing information products with a high level of involvement may be filtered out.

## 6 Results

As mentioned above, in labour input evaluation, the web forums certainly have a lower rank, than other web pages. With growth of word competitiveness in search query, the web forum rank gets lower in search results by basic query. Therefore, the basic query yield runs lower with growth of key word competitiveness level. Table 1 demonstrates the yield coefficient quantitative estimate for basic queries developed, based on parametrized query pattern implemented by Google GPS.

**Table 1.** Yield coefficient importance for basic parametrized queries with various competitiveness key words within Google GPS

Key words	Competitiveness level	Total number of searches per month	Query expression	Query type	Total number of pages in search results	Number of relevant pages in search results	Query yield coefficient
okko	low	480	okko prices	basic	63 700	81	0,081

prices							
okko prices	low	480	inurl:forum intext: okko prices	para- metrized	55 400	896	0,896
okko fishka	low	6 600	okko fishka	basic	2 270	83	0,083
okko fishka	low	6 600	inurl:forum intext: okko fishka	para- metrized	16 100	913	0,913
Lviv hostels	middle	3 600	Lviv hos- tels	basic	146 000	24	0,024
Lviv hostels	middle	3 600	inurl:viewt opic intext: Lviv hos- tels	para- metrized	887	567	0,639
Lviv hotels	middle	22 200	Lviv hotels	basic	781 000	14	0,014
Lviv hotels	middle	22 200	inurl:forum intitle: Lviv hotels	para- metrized	231	189	0,818
hotels	high	165 000	hotels	basic	64 200 0 00	7	0,007
hotels	high	165 000	inurl:forum intitle: hotels	para- metrized	2 910	645	0,645
online store	high	3 350 000	online store	basic	11 100 0 00	3	0,003
online store	high	3 350 000	inurl:viewt opic intitle: online store intext: online store	para- metrized	4 870	603	0,603

Parametrized query yield is several times over the basic queries. Therefore, by one parametrized query the relevant web forums may be found several times over one basic query. This is significant advantage, accounting that Google GPS, for example, allows to make 1000 queries daily on a non-commercial basis, and more number of queries daily made will be a profit operation and be charged. Thus, the parametrized queries allow obtaining the relevant outcomes on a non-commercial basis by ten folds.

## 7 Conclusions

A product, service consumer experience qualities were reviewed, definition “consumer experience”, concept definition of this term and the proposed term rationale were proposed; the consumer experience documenting form within the web environment and subjective information demand reasons, in particular, the consumer experience, were reviewed. Web forums, as the subjective information accumulation environment, social and communicative properties of the web forums and informative parts of their participants in the consumer experience exchange were studied. As the review outcome showed, the web forums are a favourable environments for the con-

sumer experience formation and accumulation and have a series of advantages versus other web systems for consumer experience accumulation. Technical structure of the web forum information content was reviewed for its compliance with structure of communication process between the web forum participants. It was learned that the technical structure reflects data base structure only and it may not be utilized for analysis of the communication process between the web forum participants.

In order to build a model, the communication structure of the web forum information content was studied. Such communication structure units, as topic situation and atomic situation, were implemented and formalized, their distinction principles in discussion were established that allowed to esteem the web forum information content in terms of communication put into a text form. A communication structure model of the web forum information content was made that enabled the discussion text investigation by communicative constituents for subsequent processing to detect the consumer experience. The consumer experience model was created in the web forum information content, based on the consumer experience structure proposed under section 1 that made it possible to make the consumer experience expression construction models described in the next section.

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