Erasmus University Rotterdam
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Master Thesis

Curiosity in Decision-Making

Are People Willing to Pay Money to Satisfy Their Emotion?

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“Curiosity is the most superficial of all the affections; it changes its object perpetually.”

(Edmund Burke)

Curiosity brought me here.

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1 Introduction to the Topic and Problem Statement

Over the past decades, research on emotions has gained increasing attention – specifically in the field of decision-making[1], including also economic decisions. Before, especially economists did not pay much attention to emotions, disregarding them as "irrational occurrences that cloud judgment and distort reasoning" (Barnes & Thagard 1996, p. 426). However, "rather than being natural adversaries, rational and emotional processes function together" (ibid.). In other words, "emotions enable social species to coordinate their behavior, to respond to emergencies, to prioritize goals, to prepare for appropriate actions and to make progress […]" (LeDoux 1996, p. 176).

The mentioned quotes already point out that research on emotion has provided evidence "for the ubiquity of emotion, with the influence of emotion extending to all aspects of cognition and behavior" (Cacioppo & Gardner 1999, p. 195).

Emotional experiences can vary considerably from one another: Starting from a neutral point of emotional indifference, they may assume positive as well as negative valences (see Elster 1998). Considering some emotions, expressions like happiness, anger or fear come to mind.

Less salient, may be curiosity. The existing body of literature turns out to be rather small, particularly with regard to more recent publications[2].

This gives reason to tie in with existing research by further exploring the role of curiosity in the context of decision-making; more precisely, its role in purchase decisions.

Smith and Swinyard (1988) suggested a descriptive model of product curiosity, which identifies product awareness, product interest and finally a certain level of product uncertainty as the necessary antecedents of curiosity. In their model product curiosity is described as an "internal state", resulting in a customer's ambition to acquire more product-related information.

Also Menon and Soman (2002) studied curiosity and its power in effective advertising strategies: They hypothesized that generating curiosity about a product would result in a greater elaboration of the ad by the consumer and thus lead to an enhanced brand effect. Further, the generated curiosity would be stronger if the missing product information was "moderate". In this context "moderate" means "cued": "A moderate knowledge gap can be created by advertising that provides a cue to help consumers elaborate about the missing information" (Menon & Soman 2002, p. 4).

[1] E.g. Simonson (1992); Barnes & Thagard (1996); Elster (1998); Connolly & Zeelenberg (2002); Loewenstein & Lerner (2003); Lerner et al. (2004); Sanfey et al. (2006); van Dijk & Zeelenberg (2007)

[2] E.g. Berlyne (1954a); Smith & Swinyard (1988); Loewenstein (1994); Mikulincer (1997); Menon & Soman (2002); Caldwell & Burger (2009); Kang et al. (2009)

Their results indicated that curiosity results in a search for the missing information, a finding, which is in line with the model presented by Smith and Swinyard (1988).
Appropriately cued, curiosity could go even further, influencing the way consumers elaborate on advertisements, confirming what Menon and Soman had hypothesized.

Indeed, among marketers and advertisers, curiosity is already quite popular.[3]
The aim of this thesis is to contribute to the existing literature by further exploring curiosity as a marketing strategy and in what way it affects purchase decisions. For this purpose, a new descriptive model of curiosity will be presented, picturing curiosity before and after a purchase decision as well as its influence in the decisional process.
This model will be tested in an experiment: Like Smith and Swinyard (1988) suggested, a certain level of uncertainty concerning the product is necessary. In the experiment, participants will be confronted with a sealed box of cosmetics where the exact content is unknown. The relevant question in this respect is whether curiosity about the missing content information will result in a willingness to pay for it among the participants.

This thesis consists of five sections: The first one concerns emotions (in decision-making) in general. To begin, a definition of the concept of "emotion" is needed. The baseline for this will be the *component process model* developed by Klaus Scherer (2000b, 2001, 2004b, 2005). A section, which aims at exploring the ways emotions may enter decision-making, follows this. In particular, a theory presented by George Loewenstein and Jennifer Lerner (2003) will be presented.
The second section is about the emotion of curiosity. Besides reviewing the existing literature, this section aims at exploring curiosity specifically as an emotion.
So far, various definitions of curiosity coexist in literature, all suggesting that curiosity is a concept very closely related to emotions. In that sense this thesis contributes to existing findings by applying the *component process model* (e.g. Scherer 2005) on curiosity, highlighting that curiosity may indeed match the requirements of an emotion. The *information-gap perspective* discussed by George Loewenstein (1994) will offer a suitable starting point for discussion.
The third section of this thesis contains the description of an experimental study, which is designed to elicit curiosity that is experienced by the participants when confronted with the purchase decision. This is done, by letting the participants account for their feelings.

[3] For instance, the brand introduction of E.ON (German electric utility provider) was anteceded by an extensive marketing communication consistently evolving around the slogan "BIST DU ON?". At the time nobody knew the brand E.ON yet. Thus, the slogan pointed at a knowledge gap, attracting consumers to visit the company's website. Another example provides a commercial by Ferrero Kinder Surprise launched in 2012: Besides the product, which itself already aims at children's curiosity, the TV commercial picked up curiosity showing a sequence of different children sitting at a table starring at a sealed Kinder Surprise. A slogan appeared on the screen asking the audience "What are the children waiting for? Are you curious? Visit our website to find out!" (original in German).

This particular method again relies on the *component process model* discussed in part one. Within an emotional process, "feelings" reflect a subjective experience; they combine all components of an emotion into an indivisible whole, which individuals later refer to when labeling their emotional experience (see Scherer 2004b).

Finally, the fourth section serves to discuss the experimental results, to point at possible limitations and to highlight opportunities for future research. A fifth and last section concludes this thesis with a summary of its main findings.

1.1 Defining the Concept of Emotion

Research on the role emotions play in decision-making requires a precise understanding of the concept of "emotion". For a term used so commonly in every-day language it may seem easy to reach a consensus on its meaning. However, a closer consideration reveals controversy over the definition of emotion, also with regard to confounding concepts such as feelings, moods or attitudes.

"Recent research on emotions is almost as vast and diverse as emotional life itself" (Cacioppo & Gardner 1999, p.191). "[…] scientists concerned with human nature have not been able to reach a consensus about what emotion is […]" (LeDoux 1995, p. 209).

"Even though the term is used very frequently, to the point of being extremely fashionable these days, the question "What is an emotion?" rarely generates the same answer from different individuals, scientists or laymen alike" (Scherer 2005, p. 696). "The phenomena [emotions] are complex, and when using words, individuals […] take their pick in what they wish to designate in those complex phenomena" (Frijda et al. 1995, p. 121).

The resulting question is, how to define such a concept that is fading away due to inter-individual interpretation differences?

An attempt to overcome this connotation issue is made by Klaus R. Scherer, who discusses the framework of the *component process model*, in which "emotion" is defined as a composition of five crucial elements that all need to be coordinated and synchronized for the duration of the respective emotion (see Scherer 2005).

To start the process of "emotion", an eliciting event is needed, "which disrupts the flow of behavior" (Scherer 2005, p. 701). A trigger as a necessary antecedent is unique in emotions, among other affective states. Triggering events may be observable or not, real or imagined (see Elster 1998). Such events may consist of "natural phenomena" or the "behavior of other people" (Scherer 2005, p. 700). Also, an individual's own behavior may constitute a trigger for an emotion.

Next to these "external events", "internal events" can likewise elicit emotions (see ibid.). Examples of such internal events are "memories or images that might come to our mind. These recalled or imagined representations of events can be sufficient to generate strong emotions" (ibid.).

The first of the five elements composing an emotion is a cognitive component (appraisal of the eliciting event). It prepares the following emotional reaction, after having evaluated the trigger for its significance. "In this sense, emotions can be seen as relevance detectors" (Frijda, 1986; Scherer, 1984a in Scherer 2005, p. 701).

The cognitive appraisal is followed by neurophysiological and motivational components (bodily symptoms and action tendencies), along with facial/vocal expressions.

Finally, the composition is completed by a subjective feeling component (see Scherer 2005). “Virtually all aspects of mental and somatic functioning are involved [in an emotional reaction]” (Scherer 2004b, p.137). “The resulting massive mobilization of resources must be coordinated, a process which can be described as response synchronization” (Scherer 2005, p. 701, with reference to Scherer 2000b & 2001).
The last component of an emotion already points at an important distinction of emotions from feelings, given that the latter term is frequently used synonymously in every-day language. Whereas “emotion” denotes “the total multi-modal component process” (Scherer 2005, p. 699), “feeling” specifically reflects the subjective experience of an emotion. Scherer proposes to view the feeling component as a “monitoring system” (Scherer 2004b, p. 137), thus a feeling reflects “the total pattern of cognitive appraisal as well as motivational and somatic response patterning that underlies the subjective experience of an emotional episode” (Scherer 2005, p. 699). “The analytically separable parts of the component process in emotion combine to form a phenomenologically indivisible whole – feeling” (Scherer 2004b, p. 154).
After all, a feeling qualifies as a part of an emotion within the *component process model*:
It denotes the personal perception of an emotion, which we refer to when labeling an emotional experience.

Further, “emotion” needs to be differentiated from “mood”: emotions can be characterized as intense and of rather short duration; moods, in contrast, are “diffuse affect states” (Scherer 2005, p. 705) low in intensity and of long duration. Additionally, for a mood to emerge no obvious trigger is needed (see ibid.).
The characterization of “emotion” is completed with a differentiation from “attitudes”.
The latter refer to “relatively enduring beliefs and predispositions towards specific objects or persons” (ibid. p. 703). In contrast to emotions, attitudes are low in intensity: They further have low response synchronization and no triggering event is needed (see ibid.).
Concluding, “emotion” is a complex component process in reaction to an eliciting event.
It includes mental as well as somatic functions, which are monitored by and integrated into the all-encompassing feeling component. Thus, asking people about their feelings constitutes a reasonable approach to measure emotions (see Scherer 2004b, 2005).

1.2 Emotions in Decision-Making

The existing literature suggests that emotions play an important role in decision-making, influencing the latter in various ways: "Emotions clearly do serve essential functions in decision-making […]" (Loewenstein & Lerner 2003, p. 620). The next section is intended to examine the various facets of emotions in decision-making.

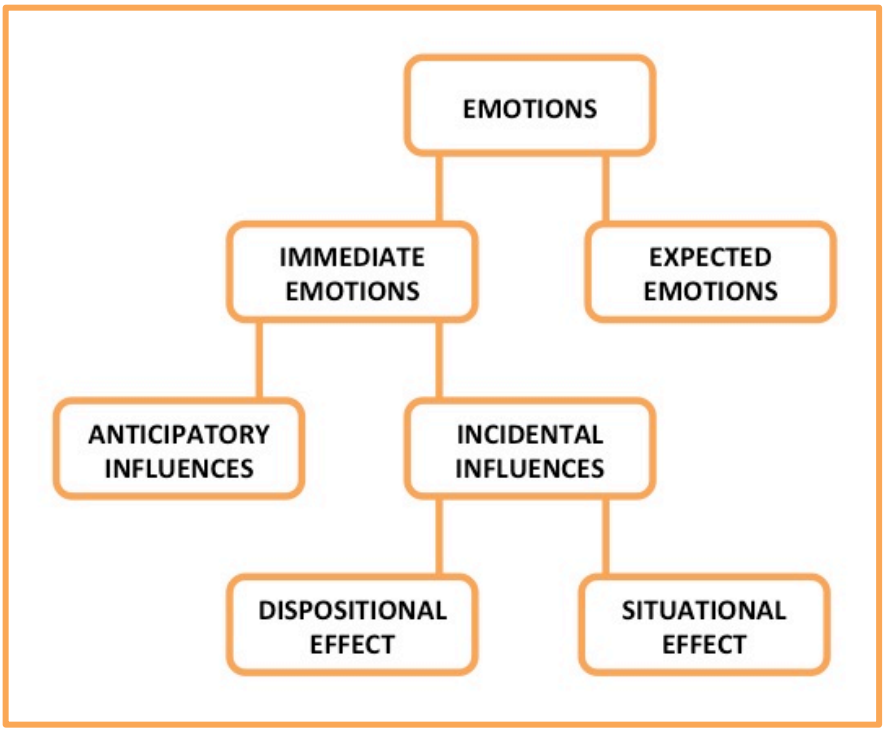

Figure 1 – Emotions in Decision-Making based on Loewenstein and Lerner (2003)

Loewenstein & Lerner (2003) suggest the following approach. Essentially, there are two different ways, in which emotions can enter decision-making: the first effect is captured by the notion of *expected emotions*.

Expected emotions are not actually experienced emotions, they rather consist of cognitions about future emotions. They capture predictions made by the decision-maker about the emotional consequences of the outcomes attached to a particular decision (see Loewenstein & Lerner 2003).

The second effect emotions can have in decision-making is summarized by the notion of *immediate emotions*. As the term already suggests, *immediate emotions* are actually experienced "immediately", i.e. at the time of decision-making. "Immediate emotions reflect the combined effects of emotions that arise from contemplating the consequences of the decision itself […] as well as emotions that arise from factors unrelated to the decision […]" (ibid. p. 620).

This definition already indicates that the concept of *immediate emotions* needs to be split up further into two sub-categories: *anticipatory* and *incidental influences*. Both types of *immediate emotions* may affect decision-making either directly or indirectly.

According to Loewenstein and Lerner, *anticipatory influences* stem from thinking about future consequences of the pending decision. With respect to the earlier presented category of *expected emotions*, this definition may seem confounding, capturing what seems the same effect of emotions. However, there is a fundamental difference between *expected emotions* and *anticipatory influences*.

While the former exclusively deal with expectations, the latter indicate present emotions emerging from the anticipation of the consequences related to the decision at hand (see Loewenstein & Lerner 2003). In other words, the emotional experience is brought forward in time. In the case of negative anticipated consequences, the present emotional experience is also negative. Positive anticipated consequences, however, can not only lead to a positive emotional experience at present, but also to frustration, "if the decision-maker becomes impatient for the consequences to occur" (ibid. p. 630).

Within this framework, direct effects of *anticipatory influences* are action tendencies that result from this very anticipated emotional experience. Selective information processing leading to the anticipation of particular decisional consequences may be accounted as indirect effect (see ibid.).

The second sub-category of *immediate emotions* consists of *incidental influences*, which cover all emotional experiences that are unrelated to the consequences of one's decision. *Incidental influences* can be split up into *dispositional* and *situational affects*.

As the terms suggest, emotional experiences can be affected by situations and dispositions. The latter refer to a person's tendency to experience particular emotions: "Affect dispositions […] describe the tendency of a person […] to be prone to react with certain types of emotions […]" (Scherer 2005, p. 705). To give an example, a person may be irascible (emotional disposition) and experience anger (emotion) in consequence of a triggering event.

The situation a person is in at the time of decision-making contributes to the second type of *incidental influences*: *situational affects*.

Firstly, a lingering mood the decision-maker is in, may affect their appraisal of triggering events related to the decision at hand. Correspondent to the appraisal of the trigger, different emotional experiences may result, which in turn affect the decision outcome. Secondly, also incidental emotions (unrelated to the decision) can influence the decision maker (see Loewenstein & Lerner 2003). Moods as well as incidental emotions affect decision-making directly. Their valence affects the course of action chosen by the decision-maker (see ibid.).

Due to the differences between moods and emotions in terms of intensity and duration, the former being less intense and more enduring, the impact of the *situational affect* may vary correspondently. Loewenstein and Lerner suggest that at lower levels of intensity the effect of immediate emotions may become irrelevant, while at higher levels immediate emotions progressively assume control of behavior (see ibid.).

Notably, the decision-maker brings both determinants of *situational affect*, moods and incidental emotions, into the situation. Additionally, the situation itself may induce a *situational affect*: "Minimal sensory cues" (ibid. p. 633), covering situation-specific sights, scents and sounds (ibid. and the sources mentioned by them) constitute a third determinant of *situational affect*.

After all, *incidental influences* can either be *dispositional* or *situational*. Both types trigger emotions immediately and thus influence decision-making.

As Jon Elster notes: "Occurrent emotions are jointly caused by emotional dispositions and events that are outside the agent's control […]" (Elster 1998, p. 56).

Likewise, Loewenstein and Lerner remark, "dispositional and [situational] state affect may influence decision-making in an interactive fashion" (Loewenstein & Lerner 2003, p. 632).

As already anticipated, the impact any of the discussed sources of *immediate emotions* have on decision-making depends on their level of intensity (ibid.).

In conclusion, emotions enter decision-making either as *expected* or as *immediate emotions*. Especially the line between the former and *anticipatory influences*, which constitute a subcategory of the latter, should be drawn carefully. Only *anticipatory influences* lead to acute emotions attached at the point of decision-making. *Expected emotions* represent mere cognitions about future emotions that result when considering possible decisional consequences.

Therefore, only *immediate emotions* will be experienced in terms of the *component process model* and thus integrated into a feeling. Indeed, the focus will exclusively be on *immediate emotions*; consequently, the empirical approach within the framework of this thesis is to ask people to account for their feelings, indicating to what extent they have monitored the corresponding emotion.

2 The Emotion of Curiosity

Writing a thesis about curiosity could be a process intrinsically motivated by the topic itself. Additional motivation yields the fact that – from a quantitative point of view – not much research has been done on curiosity. Existing literature reveals some interesting insights on curiosity that encourage further research.
Especially, since curiosity seems to have various facets: Even though it can be assumed that everybody is familiar with curiosity, existing literature fails to coherently classify it; numerous definitions coexist, leaving space for thought.
So far, an explicit link between curiosity and emotions has not been established yet.
The question whether curiosity may be as well defined as an emotion shall be part of the following chapter.
Emotions in general and curiosity specifically suffer from the same definition paradox, being both every-day terms, lacking, however, a consistent definition in the literature.
An indication supporting the proposition to interpret curiosity as an emotion may be the following: Literature has shown that curiosity can be linked to a variety of feelings (Mikulincer 1997), which in turn constitute the encompassing monitoring component of "emotion" in the *component process model* (CPM). Thus, curiosity is at least very closely related to emotions.
The importance of emotions also in decision-making has been argued in the previous chapters; consequently, it seems promising to further explore the role curiosity plays – possibly being an emotion or a very similar concept.

Existing literature on curiosity has evolved over a very long period of time, with "the earliest discussions of [it], predating the emergence of the field of psychology […]" (Loewenstein 1994, p. 76). In his paper *The Psychology of Curiosity: A Review and Reinterpretation* George Loewenstein discusses all the findings and theories on curiosity that literature has offered before. However, the gap of twenty years since the publication of Loewenstein's paper has been bridged without additional articles specifically concerned with the nature of curiosity.
Based on Loewenstein's review and reinterpretation from 1994, three main advances at curiosity can be distinguished: *drive theories*, *incongruity theories* and the *competence approach*.
Drive theories set curiosity equal to human drives. The main idea behind these theories is that curiosity leads to an unpleasant experience, a state of arousal that can be compensated with an engagement in exploratory behavior (Loewenstein 1994).

Drives may be either homeostatic or stimulus-induced. The former (homeostatic drives) are stimulated internally, with an increasing intensity in attendance of satisfaction. Examples for basic homeostatic human drives are hunger and thirst.
Drives, which are not considered homeostatic, belong to the category of stimulus-induced drives. As the term already suggests, they are triggered by external cues in the environment. D. E. Berlyne (1954a) advanced this "drive-based" view on curiosity: "According to Berlyne, the curiosity drive is aroused by external stimuli, specifically *stimulus conflict* or *incongruity*" (ibid. p. 81). Berlyne's view on the "curiosity drive" may be considered as the transition to the second approach to define the nature of curiosity: *incongruity theories*.

Even if most of these theories distanced themselves from the idea of curiosity being a drive, Berlyne's main idea remains, that curiosity is instigated by an incongruity.
In a different way from Berlyne, however, the source of incongruity is restricted to violated expectations. It is important to notice, that the "relationship between evoked curiosity and the extremity of such expectation violations" (ibid. p. 82) is not linear, but equals an inverted U-shape. In other words, neither very low levels of incongruity, nor very high levels lead to curiosity.
In his review (1994), Loewenstein discusses three main contributions within incongruity theories presented by Donald O. Hebb (1949, 1955), Jean Piaget (1969) and Joseph M. Hunt (1963, 1965) respectively. All three "reached the same conclusion from very different starting points" (Loewenstein 1994, p. 82). Hebb derived his ideas on curiosity primarily from research on the human nervous system. For him curiosity resembles "the natural tendency toward cognitive processing" (ibid.). Hebb concluded that an optimal level of incongruity exists, at which individuals work most efficiently. Analogously, any level below or above the optimal would lead to an aversive reaction. "Up to a certain point, lack of correspondence between expectancy and perception may simply have a stimulating (or "pleasurable") effect; beyond this point, a disruptive (or unpleasant) effect" (Hebb 1949, p. 149, in Loewenstein 1994, p. 82). In other words, if the discrepancy between one's expectations and the actual situation is big – relatively to the "optimal level" – curiosity is replaced by a "fearlike aversive reaction" (ibid.).
Also Piaget discussed curiosity, starting from his research on cognitive development: I. a., "Piaget viewed curiosity as the product of cognitive disequilibrium evoked by [a] child's attempt to assimilate new information into existing cognitive structures" (Loewenstein 1994, p. 82). With regard to Hebb's "optimal level theory", one may say, moderate levels of cognitive disequilibrium evoke the largest curiosity. While Hebb argued that very high levels of discrepancy between expectations and observations would induce a fear-like state of arousal, Piaget believed that the child would ignore very high levels of cognitive

disequilibrium, due to a lack of ability "to relate the new stimuli to existing cognitive structures" (McCall & McGhee 1977, p. 193, in Loewenstein 1994, p. 82). Analogously, very low levels are handled in an automatic fashion; the new information is simply integrated into the existing structures (ibid.).

The third, remaining approach to curiosity within the context of *incongruity theories* was undertaken by Joseph M. Hunt. Initially, he investigated intrinsic motivation (1963, 1965). As Loewenstein describes it, Hunt also envisioned curiosity as triggered by violated expectations. Next to also postulating an inverted U-shaped function, "for Hunt, curiosity reflected a search for an intermediate level of cognitive incongruity that, in turn, was motivated by a desire for positive affect" (Loewenstein 1994, p. 82).

Hunt's curiosity account was taken up by Jerome Kagan who set curiosity equal to the human motive to resolve uncertainty. In his view, it reflected the human need for cognitive harmony, an idea based on Leon Festinger's *A Theory of Cognitive Dissonance (1957)*. "Kagan (1972) argued that "Hunt ignored three other sources of uncertainty with motivational significance": incompatibility between ideas, incompatibility between ideas and behavior […] and the inability to predict the future" (Loewenstein 1994, p. 82).

After all, Kagan abandoned the restriction of violated expectations being the only source of incongruity. In a way, Kagan bridges the gap back to the curiosity drive postulated by D. E. Berlyne. Or as Loewenstein notes: "[…] Kagan's perspective can be viewed as a modern version of Berlyne's […]" (ibid.).

The third and last account – the *competence approach* – may be considered as opposed to *drive* as well as *incongruity theories* (Loewenstein 1994).

The psychologist Robert W. White (1959) was the first to express this theoretical perspective on curiosity. White excluded the possibility of curiosity being a drive, pointing out that "curiosity has none of the characteristics usually associated with such physiological drives as hunger" (ibid. p. 83). Also, it "cannot be regarded as leading to any kind of consummatory response" (White 1959, p. 301, in Loewenstein 1994, p. 84). According to White, a drop in curiosity after receiving the critical information does not equal a consummatory response.

Instead, White saw curiosity as coming from the competence motive; a notion that was later embraced and extended by Edward L. Deci (1975) (Loewenstein 1994).

Connecting curiosity with competence illustrates people's tendency to be curious about "their own abilities" (Loewenstein refers to Festinger 1954) and further highlights that curiosity arises in situations that involve "one's self-concept" (see ibid.). In other words, for curiosity to emerge, the situational context needs to be somehow personally relevant to the individual.

So far, *drive theories*, *incongruity theories* and the *competence approach* have highlighted different aspects of curiosity. The former particularly pointed at its aversive character and the motivational force to resolve it.
Incongruity theories rather focused on the mismatch between one's expectations and actual observations as the trigger for curiosity and the inverted U-shaped relationship between such discrepancies and the level of curiosity. Finally, *competence approach* emphasized the connection between curiosity and one's self-concept as a situational determinant.

All theories contributed to shaping curiosity; however, an unsatisfactory feeling remains. The concept of curiosity is still vague.
If curiosity is indeed aversive as *drive theories* assume, why do people voluntarily expose themselves to situations, which will instigate curiosity? *Incongruity theories* partly account for this phenomenon, postulating an optimal level of incongruity, which supposedly has a stimulating, even pleasurable effect. However, a wide range of situations exists, in which curiosity does not seem to stem from violated expectations: Solving puzzles, reading mystery novels, or trying to overhear a conversation taking place in one's surroundings.
In all the listed examples, *incongruity theories* are unable to account for arising curiosity (Loewenstein 1994).
To fill the remaining gaps in the definition, Loewenstein proposes "an integrative interpretation of curiosity – an *information-gap perspective* […]" (1994, p. 86f), which "views curiosity as a form of cognitively induced deprivation that results from the perception of a gap in one's knowledge" (ibid. p. 76).
The idea behind the *information-gap perspective* is based on William James (1890/1950). Of course, the concept of a knowledge gap is relative in nature: To define it on an individual or situational level, a personal reference point is needed.
The most prominent example of the reference-point concept is the *prospect theory* developed by Daniel Kahneman and Amos Tversky (1979) for decision-making under uncertainty (see also Loewenstein 1994 for reference). In *prospect theory* "value is assigned to gains and losses rather than to final assets […]" (Kahneman & Tversky 1979, p. 263). This implies that identical absolute outcomes may be considered as relatively positive or negative – dependent on the individual's reference point (Loewenstein 1994).
Returning to the *information-gap perspective*, curiosity is the consequence of an imbalance between "one's informational reference point" and "one's current level of knowledge".
It occurs whenever the latter drops below the former (ibid.).
Further, and in line with reasoning in the *competence approach*, the *information-gap perspective* implies that "curiosity should be positively related to one's knowledge in a particular domain" (ibid. p. 89). This aspect is important, because for the elicitation of

curiosity, attention needs to be drawn to the knowledge gap. Similar to the optimal level of incongruity, the size of the knowledge gap matters: If in a situation most of the information is missing, an individual will likely focus on the little that is given. The attention only shifts towards the gap with increasing available information (ibid.). Drawing back to the *competence approach*, this is more likely to happen in a domain of interest. In other words, a domain of interest is one, which involves an individual's self-concept.
After all, curiosity appears like a taste of deprivation, once the focus of attention lies on a knowledge gap of interest (ibid.).

Having discussed the circumstances of curiosity, its features still need a closer examination. Loewenstein refers to a statement by Edmund Burke, who describes curiosity as follows: "Curiosity is the most superficial of all the affections; it changes its object perpetually; it has an appetite which is very sharp, but very easily satisfied; and it has always an appearance of giddiness, restlessness and anxiety" (Burke 1757/1958, p. 31, in Loewenstein 1994, p. 75).
In terms of the *information-gap perspective*, curiosity's transience results from its need for attention, which in turn is a limited cognitive resource. As soon as attention gets distracted, curiosity typically ends (ibid.). Further, curiosity may be seen as a "loss phenomenon" (ibid. p. 92). Knowing that losses have greater motivational impact than gains of comparable objective value (Kahneman & Tversky 1979), one can easily explain the intensity with which curiosity is experienced as well as its link to impulsive behavior (ibid.). Finally, the sense of deprivation, which is induced by the knowledge gap that initially triggers curiosity, may also explain why satisfied curiosity often leads to disappointment. Starting from a sense of loss, satisfaction equals a mere "neutral hedonic state" (ibid.).

The literature discussed so far offers a broad perspective on curiosity and highlights different opportunities to describe it.
However, can curiosity also be defined as an emotion in terms of the framework discussed in the first part of this thesis? The following may be considered an attempt to extend the existing literature in that sense.
In his definition of curiosity, Burke uses the term "affection" to describe curiosity. Compared to the earlier discussed *drive* and *incongruity theories*, Burke's view on curiosity seems closest to the description of an emotion. Therefore, his definition may serve as a starting point: According to the *component process model* (CPM), emotion is a "multi-modal component process" (Scherer 2005, p. 699), involving virtually all aspects of mental and somatic functioning (Scherer 2004b).

Before looking at the single elements composing *emotion* in the CPM, three unique features of an emotion (discussed in part one) need to be mentioned: Unlike moods or attitudes, an emotion is an intense experience of limited duration, elicited by an antecedent trigger.

The requirement of intensity perfectly matches Burke's description of curiosity, emphasizing its "sharp appetite". Burke further mentions curiosity's transience ("it changes its object perpetually"). This supports the idea that a trigger is needed to elicit curiosity, which makes curiosity meet the second requirement of an emotion.

Borrowing insights from Loewenstein's *information-gap perspective*, the trigger may be defined as gaining awareness of a knowledge gap. As the *competence approach* pointed out, a knowledge gap triggering curiosity should involve one's self-concept; i.e. be of interest to the individual. As noted by Frijda (1986) and Scherer (1984a, 2005), emotions can be seen as relevance detectors, as individuals do not get emotional about events they do not care about. Reasoning backwards, from emotions towards curiosity, this may constitute further evidence for curiosity as an emotion.

The remaining qualification that distinguishes an emotion from other concepts is its limited duration. That curiosity meets also this last requirement cannot be based directly on Burke's description. Thus, an indirect reasoning may serve as a reference: For curiosity to emerge, a trigger (awareness of a knowledge gap) is needed. Curiosity ends when the trigger disappears (knowledge gap bridged), or when attention gets distracted from it (Loewenstein 1994). The whole idea of a need for focus, which in turn is a limited cognitive resource (ibid.), indirectly suggests that curiosity is not an ever-lasting state, but rather of limited duration. After all, curiosity seems in line with the three general characteristics of an emotion.

A step further is to go through the main elements composing an emotion in the CPM and to examine in what way they may be applied to curiosity. In terms of the CPM, the following attributes would be required: A cognitive appraisal of an eliciting event, somatic symptoms, a motivational force to act, and finally feelings associated with curiosity.

The first component, the cognitive appraisal of the eliciting event, has already been covered. Aligning with the *information-gap perspective*, becoming aware of a knowledge gap of interest resembles the component of cognitive appraisal for the emotion of curiosity.

The connection of curiosity with specific bodily symptoms is relatively unexplored in existing literature. The notion that curiosity resembles a state of "cognitively induced deprivation" (Loewenstein 1994, p. 92) could be used as a connecting factor.

In that sense, somatic responses to curiosity would be qualitatively similar to bodily symptoms known from other states of deprivation. Support for this theoretical consideration can be derived from *drive theories*, "which view curiosity as driven by the

pain of not having information […]" (ibid.). However, investigating such a hypothesis is beyond the scope of this thesis. From current literature, at least one somatic symptom can be connected with curiosity: Pupil dilation (Kang et al. 2009). Kang and colleagues showed that pupil dilation response varied significantly between treatments inducing high, middle and low curiosity respectively. Indeed, previous literature had already linked pupil dilation to states of arousal, attention, interest, and cognitive effort (Beatty 1982; Hess & Polt 1960, as mentioned by Kang et al. 2009), which all constitute features of curiosity according to the earlier presented theories.

To classify as an emotion, curiosity further needs to have a motivational component. Existing literature suggests impulsive behavior. [4] "Curiosity's connection to impulsivity is illustrated compellingly by the fact that curiosity has been used as an impulsivity induction method in experimental research" (Loewenstein 1994, p. 86).

As Loewenstein further notes: "people who are curious not only desire information intensely but desire it immediately and even seek it out against better judgment" (ibid.).

Or as Burke noted, curiosity "has always an appearance of giddiness […]" (Burke 1757/1958, p. 31). Both statements anticipate an impulsive rather than a considerate motivation to act. In that sense the missing information promises to be a highly desirable reward, triggering an impulsive search for it.

In line with this interpretation is the research undertaken by Kang et al.: They showed that induced curiosity was reflected in the activation of the reward circuitry in the brain. More specifically, they report activity in the prefrontal cortex and the caudate, both areas related to reward anticipation, or reward learning (Kang et al. 2009).

After all, impulsive information search qualifies as motivational component of curiosity.

Finally, to complete the illustration of curiosity as an emotion in terms of the CPM, a feeling reflecting the emotion of curiosity is needed: In a paper by Mario Mikulincer (1997) several such feelings are identified. Among them are *sense of mastery*, *joy*, *excitement*, but also *discomfort* and the *desire to withdraw*. The first three feelings relate to the positive side of curiosity and reflect the ideas presented in the *information-gap perspective* and the *competence approach*. They also support the motivation to impulsively engage into a search for the missing information. *Discomfort* and the *desire to withdraw* (from a situation), however, match an ambivalent or possibly even negative side of curiosity. As Burke noted, curiosity may as well have an appearance of anxiety (see Burke 1757/1958). As suggested by Mikulincer (1997) and in line with Burke's description, the feelings reflecting the emotion of curiosity may by nature be ambivalent to a certain extent. In terms of *incongruity theories*, it would rather be a linear transition from positive to negative feelings ("fear-like") at a very high level of violated expectations. Given the

[4] Experimental research see Hartig & Kanfer 1973; Kanfer & Zich 1974

definition of “feeling” as a subjective cognitive representation of “emotion” (Scherer 2005), the ambivalence could also reflect interpersonal differences (Mikulincer 1997). After all, this constitutes valuable information for the experiment described in the following chapter: The experimental technique to access positive levels of curiosity used is to ask the participants to report on the nature of their experience.
In summary, curiosity satisfies the requirements of an emotion as imposed by the CPM.

3 Curiosity in Purchase Decisions

The previous chapter has illustrated a way to classify curiosity as an emotion.
The reasoning was based on Scherer's CPM framework, as discussed in the introduction.
The following chapter, now, is dedicated to an experiment, which was conducted with the intention to investigate the role curiosity plays in purchase decisions.
From a marketing perspective, primary challenges in promoting product sales are the generation of interest, the targeting of the consumers' attention and further the education of the consumer about the product's benefits and its unique positioning (Menon & Soman 2002). Especially the process of educating a consumer may either occur in a temporary fashion or in a more enduring way, updating a consumer's ideas on a product more effectively. In order for the more enduring effect to occur, consumers need to have the skills and the motivation to process the product or advertisement in question (Petty & Cacioppo 1983).
As suggested by Menon and Soman (2002), involving curiosity in the process may indeed enhance motivation. The underlying reasoning is to present the consumer with a knowledge gap concerning a product attribute, which triggers curiosity. Curiosity in turn, results in a strong motivational force to obtain the missing information (Loewenstein 1994).
Menon and Soman (2002) found after all that involving curiosity led to the desired effects: Greater elaboration, greater information search, better learning of the information and eventually an enhanced brand effect. Concluding, they suggested to create the knowledge gap specifically around a product's unique selling points.
Taking this a step further, what happens in a more general setting, in which specific brands are unknown and the knowledge gap is not just build around a product's PODs, but covers all product-specific attributes? Does curiosity in the first place, and consequently motivation to resolve it still occur? And if so, are people willing to pay money to resolve their curiosity? This has been tested in the following experiment.
Given the theoretical framework, the experimental setting picks up elements from the CPM to measure positive levels of curiosity and the potential willingness to resolve it.
First of all, an adequate trigger is needed to elicit curiosity among the participants. This trigger should represent a knowledge gap of interest that becomes the focus of their attention once the participants have been confronted with it. As noted above, the knowledge gap covers all product-specific attributes. The only information made available to the participants is the product category.
In the experiment, a black colored box, containing five branded beauty items, represented that trigger. All participants were told that the box contained exactly five items and that all

items belonged to the product category of cosmetics. However, to avoid the situation that specific brand preferences interfered with the results, no particular brands were mentioned. Participants were selected based on their interest in cosmetics; all were female students in their twenties. Thus, the box meets the requirements of an adequate trigger.

Once the emotional process of curiosity has been elicited within the participants, a motivational force to resolve it should be observed. In the previous chapter, impulsive search for information was identified as the motivational force behind curiosity.

In the experiment, the only possibility for the participants to acquire the missing product information was by opening the box. They were given the opportunity to do so, conditionally to paying money for it.

In total, each participant faced three options: The first option was to actually purchase the box for a fixed price of € 15 and consequently being allowed to open the box to reveal the hidden content. The second option involved the purchase of a mere look inside. The price for taking a look into the box could be determined individually by each participant. The only condition was that it had to be a positive amount above € 0.

The last option was to opt out, to neither purchase the box nor the information, in which case the box would obviously remain closed.

Given the nature of curiosity, participants who feel curious should purchase the information. The option to actually buy the box may seem irrelevant. However, the box of cosmetics represented an attractive product of interest to the participants. Keeping the option to purchase it was included to normalize the results.

After all, the purchase decision represents the motivation to act induced by curiosity.

To monitor curiosity in the whole process, the participants were asked to verbally account for their feelings. In total, three times, in three different questionnaires.

As the theory on emotions in decision-making has shown, *incidental influences*, i. e. emotions unrelated to the decision at hand, may as well enter the decision-making process and influence its outcome. In order to have a baseline to compare to, participants were asked to fill in a short questionnaire about their feelings before they were presented with the box and the available decision options. This first questionnaire also contained a few demographics: Age, ethnicity, education and income. However, given the homogeneity of the participants, demographics were mainly measured to confirm the former.

The second questionnaire about the participants' feelings was handed out after the box and the decision alternatives had been presented. Expectedly, this questionnaire should yield positive levels of curiosity.

Finally, a last, post-decisional questionnaire was handed out to the participants. At this stage the box content had been revealed to those participants who either bought the entire box or a look inside. Those who refused to pay any positive amount of money for either

the entire box or the information about its content, had to fill in this last questionnaire without knowing the content of the box.

In comparison, the participants knowing the content should report a relatively greater drop in curiosity.

Next to curiosity, the last questionnaire also measured disappointment. As suggested by the literature (see Loewenstein 1994), resolving curiosity often leads to disappointment. Expectedly, many of the participants who decided to open the box by paying money for it should feel disappointed afterwards. In contrast, the participants who decided not to pay should remain at their prior level of curiosity, and be more or less unaffected by disappointment.

All decisions in the experiment were hypothetical. The monetary decisions were not realized. However, given that the situation created around the box was tangible (compared to an online survey), the experience of real curiosity was facilitated. In general, an *emotion* requires cognitive attention: The more vivid and detailed the mental picture, the more intense the emotional experience (see Loewenstein 1996). Placing the box right in front of each participant accounts for a vivid setting. Further, measuring disappointment among the participants about their decision may constitute further evidence for the closeness to reality of any monetary decision made within the experiment.

3.1 The Curiosity Model

The experiment as described above is based on a more general model (*Figure 2*) that works as follows:

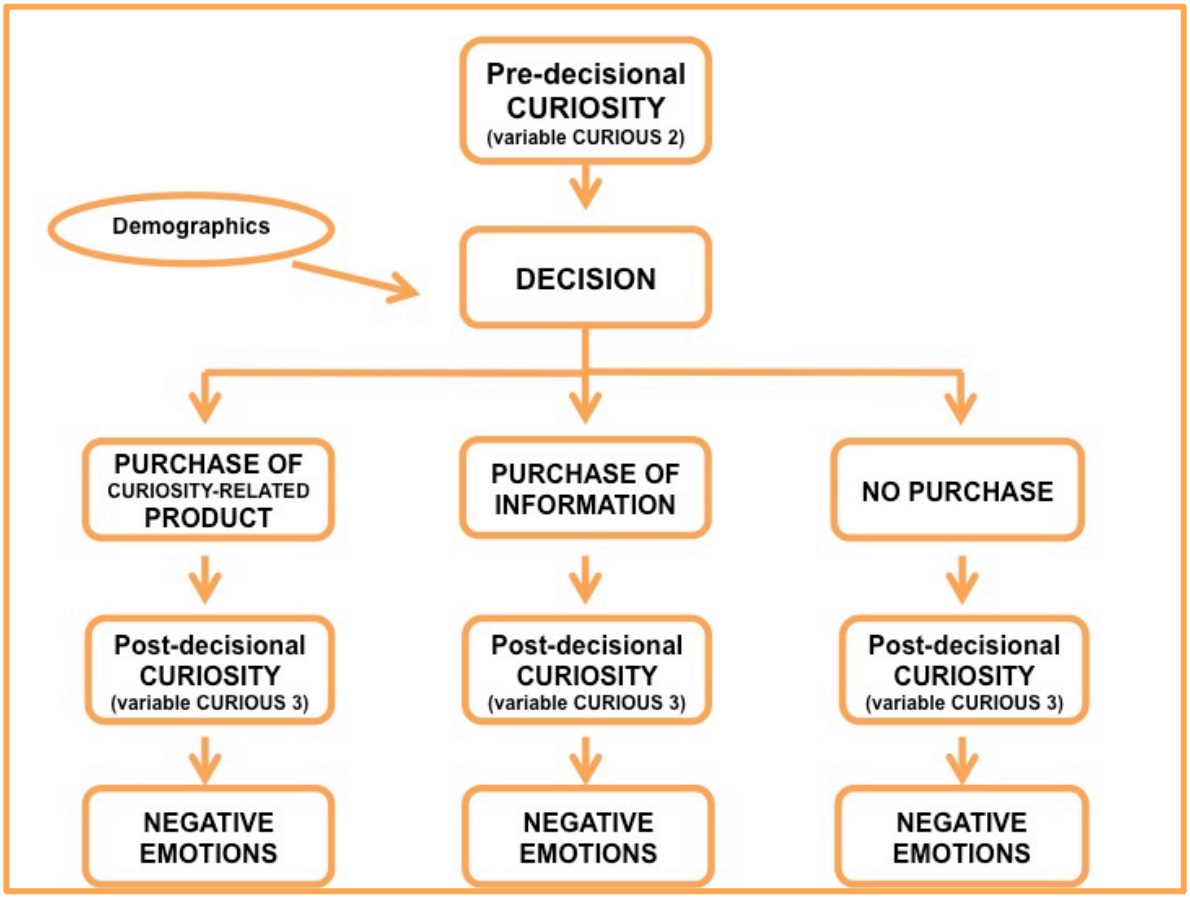

Figure 2 – The Curiosity Model

Curiosity influences a purchase decision, leading to one of three possible outcomes.
The left branch covers the purchase of the curiosity-related product. In the experiment, the purchase of the sealed box of branded cosmetics represents this option. The branch in the middle equals the decision to pay money for the missing product information. Paying for a look into the box is the counterpart in the experiment.
Finally, the right branch contains no purchase in which case the missing product information remains unknown to the consumer. Obviously, not buying the sealed box or the information about its content represents this last branch in the model.
Next to curiosity, the model includes demographics as a second factor influencing the purchase decision. In terms of explained variance a demographically diverse sample would expectedly have more power. However, given that the setting evolves around a specific product and the related decision to purchase it or not, a specific target group with similar demographics may be closer to marketing reality. Indeed, in the experiment all participants were young female students with very similar level of education and income.

Proceeding further along all branches, leads again to curiosity. The addition *post-decisional* highlights that compared to the curiosity in the beginning (*pre-decisional*), a qualitative change has taken place.
Finally, all branches end with negative emotions. With regard to literature on curiosity (Loewenstein 1994), especially disappointment is expected.

3.2 Hypotheses

Out of this theoretical model the following hypotheses were established, to be tested in the experiment described.

H_1: An increased level of pre-decisional curiosity leads to a positive purchase decision.

In the experiment pre-decisional curiosity was measured in the second questionnaire (CURIOUS 2), after the box had been placed in front of the participant and the experimenter had explained the decision alternatives.

H_2: Participants who paid money to open the box experience a relative drop in post-decisional curiosity, after the content has been revealed.

H_3: Post-decisional curiosity leads to disappointment among participants who purchased either the box or the information about its content.

3.3 Procedure

The experiment was conducted in May 2014 at the Erasmus University Rotterdam.
Within two consecutive days, 93 female participants aged between 18 and 29 years were approached either individually, or in small groups (four students at most). While the first session (49 participants) took place in the afternoon between 2 pm and 6 pm, the second session (44 participants) was conducted in the morning between 9 am and 2 pm.
The process was always the same: the girls were asked to participate in an experiment about cosmetics. Each participant filled in three questionnaires in total: the first before the actual experiment started; the second after the box and the decision alternatives had been explained. Finally, the third questionnaire at the end of the experiment, when the decision had been made and the content of the box, conditionally on paying money, had been revealed.
To match the single questionnaires with each other, participants were asked to write down their student number on each questionnaire. Other personal details were not requested. The participants were informed that their privacy would be maintained; that it would not be possible for the experimenter to match a set of questionnaires with a specific person during the analysis.

3.4 Empirical Results from the Curiosity Model

The analysis of the Curiosity Model (*Figure 2*) was conducted gradually with multiple individual statistical tests.

A first step was to see whether the variables measuring curiosity before the experiment (CURIOUS 1) and curiosity related to the content of the sealed box (CURIOUS 2) were correlated. This step was necessary, given that the object of curiosity changed between the variables. CURIOUS 1 measured how curious the participants felt before the experiment in general. In other words, this variable covers an individual baseline of curiosity; additionally CURIOUS 1 captures curiosity, which is triggered by a participant's attendance in the yet unknown experiment.

CURIOUS 2, on the contrary, measured curiosity triggered by the unknown content of the sealed box. *Figure 3* shows the results of the correlation tests:

Correlation matrix (Pearson)		
Variables	CURIOUS 1	CURIOUS 2
CURIOUS 1	**1**	**0.252**
CURIOUS 2	**0.252**	**1**

p-Value		
Variables	CURIOUS 1	CURIOUS 2
CURIOUS 1	**1**	**0.015**
CURIOUS 2	**0.015**	**1**

Figure 3 – Correlation CURIOUS 1 and CURIOUS 2

The correlation test shows a positive correlation of both variables. A possible explanation for the rather low correlation is that CURIOUS 1 has only a small variance. Many participants already reported a curiosity value of 4, on a Likert scale from 1 (totally disagree with being curious) to 5 (totally agree with being curious).

The fact that curiosity is already present in the beginning is a method bias that cannot be avoided. In fact, it actually shows that people respond with curiosity to the experiment itself and are able to report it on the questionnaire.

Another indicator in favor of the research is the low p-value. After all, this may serve as a reference that comparing CURIOUS 1 and CURIOUS 2 is legitimate.

After testing both curiosity variables in terms of correlation, a paired samples t-test was computed to test for a significant difference in means.

Mean CURIOUS 1	**3.419**
Mean CURIOUS 2	**4.290**
Difference	**- 0.871**
p-Value	**< 0.0001**

Figure 4 – Paired Samples t-Test CURIOUS 1 and CURIOUS 2

As *Figure 4* shows, the results are highly significant (p-value < 0.0001) and the means of the two variables differ by almost one entire point (-0.871). This means that the curiosity-related product, the sealed box, indeed increased curiosity levels among the participants.

Given that CURIOUS 1 and CURIOUS 2 resulted as being positively correlated and significantly different in means, a next step was to examine the influence of CURIOUS 2 on the AMOUNT PAID. The idea here was to see whether or not the increased level of curiosity (CURIOUS 2) would influence the amount of money spent by each participant. Running a linear regression was the method used.
It should be noted, that not all participants could be included due to a technical challenge: Those, who bought the sealed box paid a fixed price of €15 (DECISION 1). Hence, a linear relation between their individual level of curiosity and the amount paid had to be excluded from the analysis.
Thus, only participants who stated an individual amount of money for the content information (DECISION 2), and participants who decided not to spend any money (DECISION 3) were included in the regression.

Correlation matrix (Pearson)		
Variables	CURIOUS 2	AMOUNT PAID
CURIOUS 2	**1**	**0.436**
AMOUNT PAID	**0.436**	**1**

Observations	**55**
R^2	**0.19**
Adjusted R^2	**0.174**
p-value CURIOUS 2	**0.001**

Figure 5 – Linear Regression AMOUNT PAID (Y) and CURIOUS 2 (X)

Figure 5 summarizes the results achieved through linear regression. 55 out of 93 observations could be included. There is a positive correlation between CURIOUS 2 and AMOUNT PAID. The variance explained by CURIOUS 2 is close to 20 percent (R^2 = 0.19). Other than in the Curiosity Model, demographics were not included in the regression, after being tested as insignificant (as expected due to homogeneity).
Finally, the influence of CURIOUS 2 on AMOUNT PAID is highly significant (p-value = 0.001).

Because the linear regression already yielded good results, a way was needed to also include all those participants who purchased the sealed box at the fix price.
In a first step, a multinomial logistic regression was run, using DECISION 1, 2 and 3 as a categorical dependent variable and CURIOUS 2 as the independent variable. The main result was that no significant difference exists between buying the box (DECISION 1) and buying the content information (DECISION 2).
Hence, the multinomial logistic regression was adapted into a binary logistic regression.
A new decision variable, DECISION binary, was created, combining the former DECISION 1 and 2 into DECISION binary = 1. Those participants, who did not purchase anything (former DECISION 3) were represented by DECISION binary = 0 in the binary logistic regression. *Figure 6* shows the results:

Observations	**93**
$R^2_{McFadden}$	**0.268**
Std. coeff. CURIOUS 2	**0.864**
p-Value CURIOUS 2	**0.002**

Figure 6 – Binary Logistic Regression DECISION binary (Y=1,2) and CURIOUS 2 (X)

A first indicator for the goodness of fit is McFadden's Pseudo R^2. In general, values in the following range, $0.2 < R^2_{McFadden} < 0.4$, indicate an excellent model fit (McFadden 1974). Thus, the model tested here has a very good fit ($R^2_{McFadden} = 0.268$).
Further, the influence of CURIOUS 2 is again significant (p-value = 0.002), with a standardized coefficient equal to 0.864.
After all, a participant's level of curiosity does positively influence their probability of purchasing either the box or the information.
All previous tests showed that the level of curiosity did influence the purchase decision significantly. The remaining question is, if opening the box changed the level of curiosity among the participants.
In the Curiosity Model (*Figure 2*), a potential change in curiosity is captured by the transition from pre-decisional curiosity (CURIOUS 2) to post-decisional curiosity (CURIOUS 3). At the point of post-decisional curiosity, the amount of information

available to the participants differed depending on their purchase decision. Those who had chosen either DECISION 1 or 2 knew the content of the box, while those who had chosen DECISION 3 did not. Consequently, an ANOVA was conducted, testing for a significant difference in means for the variables CURIOUS 2 and 3 for both decision types respectively. Additionally also the combined variable, CURIOUS 2 - CURIOUS 3, was tested for a significant difference between both decision types (DECISION 1 and 2 vs. 3).

Mean CURIOUS 2 DECISION 1 & 2	**4.430**	p-Value	**0.000**
Mean CURIOUS 3 DECISION 1 & 2	**2.557**	p-Value	**0.008**
Difference in Means	**1.873**	p-Value	**0.000**
Mean CURIOUS 2 DECISION 3	**3.5**	p-Value	**0.000**
Mean CURIOUS 3 DECISION 3	**3.357**	p-Value	**0.008**
Difference in Means	**0.143**	p-Value	**0.000**

Figure 7 – ANOVA: Comparison of Means of CURIOUS 2 and CURIOUS 3 subject to DECISION 1 and 2 vs. 3

The figure above shows the results obtained in the ANOVA. All results are highly significant. On average, pre-decisional curiosity among those participants who purchased either the box or the information (4.430) is absolutely higher than among participants who refused to purchase anything (3.5).
For post-decisional curiosity the ranking is reversed: While for participants with decision type 3 (no purchase) the level of curiosity remains almost unchanged (3.357), the curiosity level among participants with decision type 1 or 2 (box/info purchase) dropped even below the initial, pre-decisional value of the other group (2.557).

As the theory suggested, disappointment can be a consequence of resolving curiosity (Loewenstein 1994). Given that a drop in curiosity was indeed measured among those participants who opened the box – suggesting the resolution of curiosity – disappointment levels were compared between the decision types purchase/no purchase.

Mean DISAPPOINTMENT DECISION 1 & 2	**2.71**	p-Value	**0.046**
Mean DISAPPOINTMENT DECISION 3	**2.07**	p-Value	**0.046**

Figure 8 – ANOVA: Disappointment Levels subject to DECISION 1 and 2 vs. 3

Figure 8 shows the values obtained in the ANOVA. The results are significant on a five percent level, indicating that disappointment is higher among those participants that resolved curiosity, compared to those, who did not.

After all, the results from the various statistical tests, suggest an adaption of the Curiosity Model (*Figure 2*). Pre-decisional curiosity does affect the decision to purchase positively. The tested demographics, which could represent an additional factor of influence, are not significant. Knowing the homogeneity of the data, however, this result is not surprising. Further, the differentiation between the purchase of the curiosity-related product and the purchase of the information on its content did not result as significant.

Hence, these two options are combined into a more general purchase option represented by the left branch of the model (*Figure 9*). Along this branch a resolution of curiosity occurs. A significant drop could be observed moving from pre-decisional to post-decisional curiosity. In contrast, no such drop takes place along the right branch. Not purchasing the missing information results in positive levels of post-decisional curiosity, with almost no difference to the pre-decisional values.

Finally, resolving curiosity led to significantly higher levels of disappointment. However, in order to establish causality between the resolution of curiosity and emerging disappointment, at least pre-decisional values would be needed.

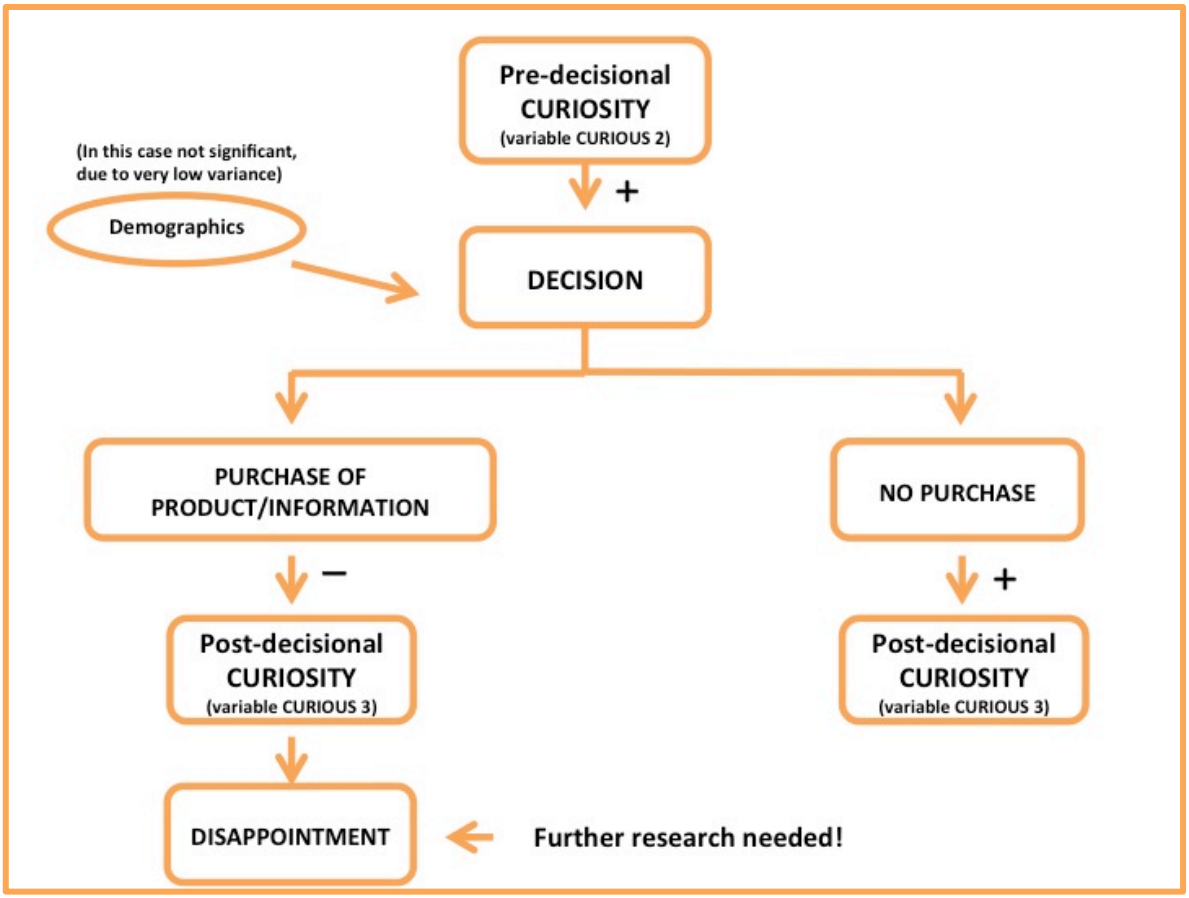

Figure 9 – Test Results from the Curiosity Model

4 Discussion

The question why I chose to write this thesis on curiosity can be answered in the following way: "Because, amongst other reasons, I am curious." In a way, this personal motivation is reflected in the experimental results.

It could be shown that positive levels of curiosity are able to partly explain the participants' decisions to purchase either the sealed box of cosmetics or the information on its content. In other words, the first hypothesis (H_1: An increased level of pre-decisional curiosity leads to a positive purchase decision) can be confirmed.

A significant difference in terms of curiosity levels between those participants who purchased the box, and those who purchased the information could not be found.

However, combining both purchase options into one and comparing curiosity in a binary choice of purchase/no purchase, yielded significant results. This constitutes further evidence for the accuracy of the first hypothesis.

Also in terms of practical application the combination of both purchase options into a more general one does not have to be a limitation: the important finding, that curiosity about the product was triggered among the participants, remains. The box in the experiment may represent a product from any brand, around which a knowledge gap is created: All participants in the experiment who were willing to pay money for either just the information or also the product interacted with it. For the "information only" consumers the achieved effect may be translated into (at least) brand awareness.

Additionally taking into account the test results achieved in the ANOVA (*Figure 7*), also the second hypothesis (H_2: Participants who paid money to open the box experience a relative drop in post-decisional curiosity, after the content has been revealed) can be accepted. Participants, who filled their knowledge gap about the box, by looking into it, experienced a drop in curiosity: In fact, not only in relative, but also in absolute terms. Among the participants, who opened the box, post-decisional curiosity dropped even below the initial pre-decisional level of the less curious participants who refused to purchase and consequently could not open the box.

In many of the former cases, the drop led to the satisfaction of curiosity.

Looking back at Burke's description of curiosity (1757/1958), especially its "sharp appetite" could be found in the experimental results. Raised by the sealed box, pre-decisional curiosity influenced the participants to actually pay money in order to resolve it.

Indeed, one may want to add this monetary aspect to Burke's list of characteristics:

The experiment has shown, that if paying money resembles the only way to curiosity satisfaction, resolving it suddenly has a monetary value.

Even though in the analysis it was not possible to disentangle whether participants would buy the box or the information, given their level of curiosity, the mere fact that 41 out of 93 participants chose to purchase the information may serve as a reference that money in the experiment was not just paid to possess the products within the box.

The remaining hypothesis (H_3: post-decisional curiosity leads to disappointment among participants who purchased either the box or the information about its content) could neither be rejected nor accepted. Indeed, only a small step in the direction of testing it was taken in this study.
Participants, who opened the box and satisfied curiosity, did show higher levels of disappointment on average – a finding, which is in line with the suggestions in the literature (Loewenstein 1994). However, to draw a connection between resolving curiosity and the level of disappointment, the latter should have been measured before the experiment as well.
Further, an idea behind this causality could be that people who are curious build up high expectations about the object of their curiosity and are thus more likely to end up disappointed when curiosity is resolved and the missing product information is obtained.
In that sense, also measuring expectations could yield valuable information and should thus be included in a follow-up research. Possibly, an idea to avoid potential disappointment could be what Menon and Soman (2002) suggested; to create the knowledge gap around a product's PODs, which at best constitute the reason to buy the product. Revealing those with the resolution of curiosity may leave the consumers less (if at all) disappointed.

At this point, however, the essential insight is the monetary value of curiosity resolution. Building on the underlying literature, in particular Loewenstein's *information-gap perspective* (1994), this finding further emphasizes the potential curiosity has as a marketing strategy. Curiosity with all the qualities of an emotion is strong enough to directly influence a purchase decision; it enhances an individual's motivation to invest monetary resources. As Menon and Soman (2002) already suggested, curiosity directs consumers to elaborate on the missing product information more thoroughly, resulting eventually in an enhanced brand effect. In other words, they already discussed putting time and effort in the resolution of curiosity, which equals to an investment of non-monetary resources.
With this study, the monetary aspect can be added: The purchase of the curiosity-related product or rather of the missing product information. This holds under the condition that the purchase of the curiosity-related product offers the only feasible way to its resolution.

The main experimental focus lied on the box-related curiosity, which motivated the purchase decision. Being an *immediate emotion* and not incidental in nature, it may be classified as an *anticipatory influence* (see *Figure 1*). Curiosity anticipates the outcome of purchasing the box or the information on its content, making it appear highly desirable.

Besides, curiosity was additionally elicited due to other circumstances. Thus, the other times curiosity was triggered may be viewed as incidental – as described in the theory on emotions in decision-making (chapter 1.2).
For instance, incidental curiosity was triggered by the experiment itself, given that the participants were approached spontaneously and did not have any concrete information about the experiment. Positive levels of this type of curiosity were captured with the variable CURIOUS 1. Since only some participants reported this general curiosity about the experiment, it may be accounted for as a *dispositional effect* within the category of *incidental emotions*. These participants may have a more pronounced tendency to experience curiosity; for them it is more easily triggered.
Indeed, such a thought would be in line also with the *information-gap perspective*: the experiment in general represents a rather broad knowledge gap, thus not all people respond with curiosity. In contrast, the box equals a very narrow gap. Further, it involves cosmetics, which in turn enhance the female participants' self-concept.
Hence, more girls react curiously to the box, a finding, which was represented by the significant difference of the variables CURIOUS 1 and CURIOUS 2 (see *Figure 4*).
Incidental curiosity was triggered again among some of the participants who opened the box; this time by the products attributes. Participants reported to feel curious about the products' attributes, like their texture and smell.
In terms of classification, this type of curiosity does not appear to be *dispositional*. Rather related to the situation (*situational effect*). Some participants may have been familiar with the products inside the box and therefore less curious about a potential product testing.

Up to this point, a few limitations of this study have already been mentioned in the process. For instance, the need for further research to test the suggested relationship between the resolution of curiosity and disappointment.
Next to this, it is worth mentioning that a limitation lies in the experimental approach of asking people to report their feelings in a questionnaire. This method may indeed only capture "the tip of the iceberg" (Scherer 2004b, p. 139).
Reasons can be found in the limitations of language in general; individual experiences need to fit into a given choice set of linguistic terms and categories. Furthermore,

individuals may try to disguise certain aspects of their innermost feelings by simply not reporting them (ibid.). However, given that an alternative method to elicit feelings does not yet exist (ibid.) it may be considered more of a method bias, rather than a limitation of this study in particular.

Lastly, it needs to be mentioned that all monetary transactions within this study were hypothetical in nature. Nevertheless, efforts were made to depict the encounter as realistically as possible. By creating a vivid and tangible situation around the box, the experience of real emotions was facilitated. Considering that real emotions were the driving force behind the decisions taken within the experiment, the fact that only hypothetical money was used may be of less importance for the results.

5 Conclusion

The aim of this thesis was to contribute to the existing literature on the one hand in terms of a theoretical, conceptual analysis and on the other hand with empirical results applicable in marketing: More specifically with insights on curiosity as a marketing strategy and its role in purchase decisions.

Starting from the *component process model* (Scherer 2005) on emotions in general and Loewenstein's *information-gap perspective* (Loewenstein 1994) concerning curiosity in particular, this study offered a new theoretical perspective on curiosity as an emotion.

Motivation was provided by several factors: Firstly, emotions were integrated into economics only recently; their importance and "essential functions" (Loewenstein & Lerner 2003) had been disregarded for a long time (Barnes & Thagard 1996).

Secondly, curiosity turned out to be relatively unexplored; only a rather small body of literature existed, especially with regard to more recent publications.

Finally, in the absence of a consistent definition of curiosity and with existing literature already suggesting a similarity between the concepts of curiosity and emotions, the last piece of motivation to integrate curiosity into emotions was found.

As emotions are "complex phenomena" (Frijda et al. 1995), the *component process model* offered a way to disentangle them in terms of single components, which facilitated the application on curiosity.

Previously, the main findings on curiosity pointed at its aversive character and the motivational force to resolve it (*drive theories*), at the mismatch between expectations and observations behind it (*incongruity theories*), at the involvement of an individual's self-concept (*competence approach*) and finally at curiosity as a "state of cognitively induced deprivation" (Loewenstein 1994), after arising from a gap in one's knowledge (*information-gap perspective*). This awareness of a knowledge gap served directly as the first component of curiosity as an emotion in terms of the component process model: the cognitive appraisal of a trigger.

Moreover, somatic symptoms were discussed, possibly being qualitatively similar to those known from other states of deprivation. In line with the existing literature, pupil dilation (Kang et al. 2009) could be determined.

The third and – in terms of marketing – most interesting component was the motivational force to act. An impulsive search for the missing information could be connected with curiosity. The last component regarding curiosity as an emotion was the "feeling" component. Before considering its application on curiosity, a conceptual differentiation was necessary, given that "feeling" and "emotion" are used synonymously in every-day language. "Feeling", as a part of an emotion, serves as a "monitoring system" (Scherer

2004b), specifically reflecting the subjective experience of the complex process of an emotion.

After all, feelings related to curiosity were needed to finalize the derivation of curiosity as an emotion. In the literature several such feelings could be identified, reflecting the ambivalent nature of curiosity (Mikulincer 1997).

The broad range of corresponding feelings not only suggested interpersonal differences in the experience of curiosity (ibid.), but also reflected the previous theories, which already highlighted its various facets.

In terms of the practical contribution of this thesis, the aim was to explore the role curiosity as an emotion plays in purchase decisions. For this purpose the Curiosity Model (*Figure 2*) was developed and later on tested in an experiment.

Existing literature on marketing (Smith & Swinyard 1988) and the effectiveness of advertising (Menon & Soman 2002) already discussed some qualities of curiosity as a marketing strategy, leading eventually to an enhanced brand effect (ibid.). With this study a monetary value attached to curiosity resolution can be added to these findings. Elevated levels of reported pre-decisional curiosity influenced participants to pay money to reveal the hidden content of a sealed box of cosmetics. Moreover, participants experienced a drop in post-decisional curiosity, leading to curiosity values even below those of the less curious people, who refused to pay any money in the first place.

Concluding, in this study the empirical analysis of the Curiosity Model was conducted gradually. Consequently, a more integrative analysis of the model as a whole could be the next step. Furthermore, a more detailed examination of the various facets of curiosity-related feelings seems promising; and in that sense a differentiation of curiosity-driven situations: Which are the feelings connected with the emotion of curiosity that actually lead to a product-purchase? Interesting would be the discussion around disappointment.

Is there really a causal relationship with curiosity resolution? Or does the outcome of curiosity resolution rather depend on the individual feelings, with which the emotion of curiosity has been experienced? In terms of marketing, the interesting point here would be to know, if the possibly ambivalent feelings of curiosity resolution transfer into ambivalent feelings towards the product in question.

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Appendix

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  ___  ____  ____  ____  ____ (R)
 /__    /   ____/   /   ____/
___/   /   /___/   /   /___/   12.0   Copyright 1985-2011 StataCorp LP
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Notes:
      1.  (/v# option or -set maxvar-) 5000 maximum variables

. import excel "C:\Users\maxo822\Desktop\STATA_Master_Thesis.xls", sheet("Data Analysis")
firstrow
```

. summarize

Variable	Obs	Mean	Std. Dev.	Min	Max
ID	93	47	26.99074	1	93
CURIOUS1	93	3.419355	.9245749	1	5
CURIOUS2	93	4.290323	.6849412	2	5
CURIOUS2_D~3	55	4.181818	.6963106	2	5
DECISION	93	1.741935	.7056176	1	3
AMOUNTPAID	93	7.103763	6.733402	0	15
AMOUNTPAID~3	55	1.648182	1.747246	0	7.5
CURIOUS3	93	2.677419	1.044252	1	5
DECISION_b~y	93	.8494624	.3595358	0	1
CURIOUS2CU~3	93	1.612903	1.18901	-1	4
DISAPPOINTED	93	2.612903	1.103672	1	5

. pwcorr CURIOUS1 CURIOUS2, sig

	CURIOUS1	CURIOUS2
CURIOUS1	1.0000	
CURIOUS2	0.2519	1.0000
	0.0148	

. regress AMOUNTPAID_D2D3 CURIOUS2_D2D3, beta

Source	SS	df	MS		
Model	31.2812626	1	31.2812626	Number of obs	= 55
Residual	133.573556	53	2.52025577	F(1, 53)	= 12.41
Total	164.854818	54	3.052867	Prob > F	= 0.0009
				R-squared	= 0.1898
				Adj R-squared	= 0.1745
				Root MSE	= 1.5875

AMOUNTPAID_~3	Coef.	Std. Err.	t	P>|t|	Beta
CURIOUS2_D2D3	1.093056	.3102576	3.52	0.001	.4356035
_cons	-2.922778	1.314981	-2.22	0.031	.

```
. ttest CURIOUS1 == CURIOUS2

Paired t test
------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
CURIOUS1 |      93    3.419355    .0958739    .9245749    3.228941    3.609769
CURIOUS2 |      93    4.290323    .0710251    .6849412    4.149261    4.431385
---------+--------------------------------------------------------------------
    diff |      93   -.8709677    .1039494    1.002451    -1.07742   -.6645153
------------------------------------------------------------------------------
     mean(diff) = mean(CURIOUS1 - CURIOUS2)                       t =  -8.3788
 Ho: mean(diff) = 0                             degrees of freedom =       92

 Ha: mean(diff) < 0           Ha: mean(diff) != 0           Ha: mean(diff) > 0
 Pr(T < t) = 0.0000         Pr(|T| > |t|) = 0.0000          Pr(T > t) = 1.0000


. mlogit DECISION CURIOUS2

Iteration 0:   log likelihood = -94.100221
Iteration 1:   log likelihood = -84.650644
Iteration 2:   log likelihood = -83.526662
Iteration 3:   log likelihood = -83.518623
Iteration 4:   log likelihood = -83.518612
Iteration 5:   log likelihood = -83.518612

Multinomial logistic regression                 Number of obs   =         93
                                                LR chi2(2)      =      21.16
                                                Prob > chi2     =     0.0000
Log likelihood = -83.518612                     Pseudo R2       =     0.1125

------------------------------------------------------------------------------
    DECISION |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
1            |
    CURIOUS2 |   .1163079   .4247219     0.27   0.784    -.7161317    .9487476
       _cons |  -.5913496   1.895676    -0.31   0.755    -4.306806    3.124107
-------------+----------------------------------------------------------------
2            |  (base outcome)
-------------+----------------------------------------------------------------
3            |
    CURIOUS2 |  -2.245541   .7487238    -3.00   0.003    -3.713013   -.7780694
       _cons |    7.99789     3.0162     2.65   0.008     2.086246    13.90953
------------------------------------------------------------------------------


. oneway CURIOUS2CURIOUS3 DECISION_binary, tabulate

DECISION_bi |    Summary of CURIOUS2-CURIOUS3
       nary |        Mean   Std. Dev.       Freq.
------------+------------------------------------
          0 |   .14285714   .77032889          14
          1 |   1.8734177    1.054503          79
------------+------------------------------------
      Total |   1.6129032     1.18901          93

                        Analysis of Variance
    Source              SS         df      MS            F     Prob > F
------------------------------------------------------------------------
Between groups      35.6160532      1   35.6160532     34.32     0.0000
 Within groups      94.4484629     91    1.0378952
------------------------------------------------------------------------
    Total           130.064516     92   1.41374474

Bartlett's test for equal variances:  chi2(1) =   1.8419  Prob>chi2 = 0.175
```

```
. oneway CURIOUS2 DECISION_binary, tabulate

DECISION_bi |        Summary of CURIOUS 2
       nary |        Mean   Std. Dev.       Freq.
------------+------------------------------------
          0 |         3.5   .75955453          14
          1 |   4.4303797   .57027983          79
------------+------------------------------------
      Total |   4.2903226   .68494121          93

                      Analysis of Variance
    Source              SS         df      MS            F     Prob > F
------------------------------------------------------------------------
Between groups      10.2942017      1   10.2942017     28.50     0.0000
 Within groups      32.8670886     91   .361176798
------------------------------------------------------------------------
    Total           43.1612903     92    .46914446

Bartlett's test for equal variances:  chi2(1) =   2.0378  Prob>chi2 = 0.153


. oneway CURIOUS3 DECISION_binary, tabulate

DECISION_bi |        Summary of CURIOUS 3
       nary |        Mean   Std. Dev.       Freq.
------------+------------------------------------
          0 |   3.3571429   .92878273          14
          1 |    2.556962     1.02215          79
------------+------------------------------------
      Total |   2.6774194   1.0442523          93

                      Analysis of Variance
    Source              SS         df      MS            F     Prob > F
------------------------------------------------------------------------
Between groups      7.61462404      1   7.61462404      7.47     0.0075
 Within groups      92.7079566     91   1.01876875
------------------------------------------------------------------------
    Total           100.322581     92   1.09046283

Bartlett's test for equal variances:  chi2(1) =   0.1903  Prob>chi2 = 0.663


. oneway DISAPPOINTED DECISION_binary, tabulate

DECISION_bi |       Summary of DISAPPOINTED
       nary |        Mean   Std. Dev.       Freq.
------------+------------------------------------
          0 |   2.0714286   .73004591          14
          1 |   2.7088608   1.1339956          79
------------+------------------------------------
      Total |   2.6129032   1.1036723          93

                      Analysis of Variance
    Source              SS         df      MS            F     Prob > F
------------------------------------------------------------------------
Between groups      4.83214723      1   4.83214723      4.10     0.0458
 Within groups      107.232369     91   1.17837768
------------------------------------------------------------------------
    Total           112.064516     92   1.21809257

Bartlett's test for equal variances:  chi2(1) =   3.4113  Prob>chi2 = 0.065
```