The Taste of Criticism: Enhancing Feedback for Creativity

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ABSTRACT
Criticism is important for cultivating creativity. In this paper, we propose a method to enhance feedback to creators of creative works. We separate the explicit evaluation from the implicit evaluation. We pay particular attention to cases in which the viewer expresses a positive evaluation of a work but the actual implicit evaluation is rather negative. In such cases, the feedback of the implicit criticism is important for creativity. We describe a prototype system designed to deliver such feedback to the creator. The feedback interface is represented by the taste of green tea, directly delivered to the creator, thus motivating the creator.

Author Keywords
Feedback system, creator, implicit evaluation, impressions.

ACM Classification Keywords
H.4.m. Information Systems Applications: Miscellaneous; H.5.m. User Interfaces: Miscellaneous.

General Terms
Design, Experimentation, Languages.

CRITICISM FOR CREATIVITY
In order to cultivate creativity in any field, critical feedback is important. Creative and critical thinking are two sides of the same coin [4]. However, strong criticisms do not usually reach the creators. This study is based on the idea that true critical evaluation can be detected in the comments of viewers and delivered confidentially to the creator. In this study, we use the term creator, which refers to the designer, artist, or author of the work being discussed. Constructive criticism is necessary for enhancing creativity [1] and for the further improvement of a work. Critical evaluation plays a common role in many areas where technical appreciation is not the only aspect being evaluated. For example, in the domain of the arts, the typical evaluation mechanism is to evaluate works based on criticism from professional groups and expert critics in a particular field. Creators sometimes have difficulty accepting criticism. Fear of negative criticism is a common problem, which often negatively affects the work and thus, creativity [1]. Moreover, no matter how well the creator is prepared to accept them, deep criticisms can be unacceptable to a creator. In the field of design, critical evaluation is based on criticisms by non-experts (users) rather than experts, and analysis of the content of criticism is essential to detect the true evaluation [2]. The real motivation effects of evaluation are often hidden, even from the evaluator; however, creators’ designs can benefit from such feedback. In other words, despite the differences in critique in the art, design and other creative fields, critical evaluation fosters creativity. It is necessary to extract and provide feedback from the meanings hidden behind superficial evaluation (Figure 1). However, harsh criticism can cause tremendous stress in its recipient. Therefore, it is necessary to devise a method to communicate such evaluations. A system for providing such feedback would allow criticism without the risk of damaging relationships, because its meaning would be undisclosed to others.

STUDY
We pay attention on cases where the viewer expresses a positive opinion regarding a work but their actual opinion is rather negative (Figure 1). In such cases, the feedback of the actual opinion is important for creativity. Hence, the main question is how to enhance creativity through criticism without damaging it. In this study, we propose a prototype system to enhance feedback to creators of creative works based on the implicit evaluations of the viewer (usually, but not restricted to, art or design works).

The goal of this study is to detect the deeper criticism or appraisal within an explicit evaluation and provide a proper interface to relay that criticism or appraisal to the creator without disclosing it to others. When proposing a method for providing critical feedback, we considered embodied and mediated feedback. As for the method of analysis and evaluation, we explore the associations behind each impression (verbalization) given by a person who interacted with a created work. Associations are the stimulus words used to evoke these explicit impressions.

Figure 1. Framework of study and target of analysis.
We employ a concept network-based methodology to identify these implicit association words, which lie beneath the superficial impressions of a work [3]. The words obtained in this analysis are mapped in concept networks and separated into words with negative and positive meanings (Figure 2), based on a list of words created by experts. We considered the weight of the positive and negative words in the concept network as an indicator of the strength of the criticism and appraisal. Delivering such feedback to a creator with numbers or visualizations is not expected to be effective without compromising their feelings. In order to deliver criticism undisclosed to others that was likely to be accepted, we developed a system in which criticism is represented by specific tastes—tea interface. Negative criticism was conveyed by giving the creator bitter taste (green tea catechins (GTC)) and positive criticism was conveyed through sweetness (Figure 2), serving our purpose for embodied and mediated feedback. We use a tea blended for amount of bitterness/sweetness, averaged at 10%. The addition of taste does not affect the health of the creator and remains undisclosed to the viewer.

To examine the proposed identification method for the critical evaluation, we conducted a four case experimental study with non-experts in the field (Table 1). For example, the data subset obtained in the first case was: \( Ev = \left\{ \frac{0}{0.0048} - \frac{0.0048}{0.0048} \right\} \times 100 = -50\% \). All explicit evaluations were classified as positive by the creator. The creator, after tasting the evaluation of own works, could recognize and compare the evaluations.

**DISCUSSION AND CONCLUSIONS**

This study describes a method to enhance feedback to creators of creative works in order to convey implicit feedback, to ultimately enhance further creativity. The study analyses implicit criticisms based on experimental results. The identified and evaluated implicit information is represented by an embodied and mediated interface—green tea. The proposed system requires the creator to literally taste the criticism their work receives. If the evaluation is positive, the creator is provided with sweetened tea. Conversely, if the evaluation is negative, the creator is provided with bitter-tasting tea. The true intent of viewer evaluation is confidently delivered, contributing to the creator’s self-evaluation and intrinsic motivation. We showed the results of evaluations of four works, which resulted in different degrees of criticisms. The feedback system allowed creators to discern differences between explicit and implicit evaluations—possibly fueling further creativity. Future plans aim at improvements and investigating the effects on creators.

**REFERENCES**


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**Table 1. Implicit evaluations and feedback in four cases.**

<table>
<thead>
<tr>
<th>Case</th>
<th>Implicit evaluations</th>
<th>Delivered feedback by tea (aver.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper lamp</td>
<td>-50% e.g. “burn”</td>
<td>(-)-50% (bitterness)</td>
</tr>
<tr>
<td>Paper lamp</td>
<td>100% “comfort.”</td>
<td>(+)+100% (sweetness)</td>
</tr>
<tr>
<td>Stained glass lamp 1</td>
<td>100% “grace”</td>
<td>(+)+100% (sweetness)</td>
</tr>
<tr>
<td>Stained glass lamp 2</td>
<td>-66.7% “alarm”</td>
<td>(-)-70% (bitterness)</td>
</tr>
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