Digest inn – a serious game to stimulate self-reporting in obesity treatment

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ABSTRACT

Digest Inn is a serious game designed to support the traditional overweight treatments by increasing adherence and loyalty to treatment goals. It provides users with an informal, fun and stimulating alternative that educates and motivates users during the periods in between consults with their practitioner.

KEYWORDS

Serious gaming, eHealth app, obesity, self-reporting

1 Design Rationale

The metaphor of building and maintaining an hotel with rooms that reflect parts of the human body (e.g. mouth, stomach, brain) is used as a serious gaming technique to engage in a game like interaction. Both subjective food intake and objective step counts inputs are used to generate Floepies and Runnies, in-game currencies to implement fun and engaging mini games. The game unlocks new rooms and new functionalities, as more Floepies and Runnies are collected (Figure 1). This time/resource management principle is well known in the entertainment industry to sustain prolonged player retention. The frequency and quality of these inputs give more playtime, which is expected to stimulate healthy behavior. When input is neglected, the state of the hotel and mood of the guests/personnel is negatively affected. The players input can be used by a dietitian in their consultations, as well as there are chat and feedback options in the game. Goal setting by a dietitian to a treatment-passed timeline is one of the possibilities.

2 Methodology

Digest Inn was developed using participatory design methods involving dietitians and clients. A successful cooperation between Gain play studio as developer of successful serious games and HAN university of applied sciences who provided expertise and a network of dietitians. Design assumptions on features, visual style and game mechanics were tested and validated with both these groups. Further development was performed by game designers with experience on serious gaming in healthcare treatment. A unique aspect of the game is the adoption of a mixed method approach to combine objective and subjective inputs in the game. Runnies are generated by objectively tracking user's physical activity levels using Google Fit services. In addition, Floepies are generated by 5-point liker scales used to collect self-reported data on the relative health (from unhealthy to healthy) and portion size (from little to a lot) of meals consumed as well as the user's feeling while eating (from 1 to 5 harts) (Figure 2). The game invites users to input three daily meals: in the morning, afternoon and evening.

Figure 1: In game screenshots of input modalities, and rooms

Figure 2: Input modalities for food intake and feelings.