

Heavy-users, light-users and age groups

The impact of age and consumption frequency on discrimination ability in a hedonic test

J. Kinner, Z. Veljkovic, A. Bongartz

ZHAW - Zurich University of Applied Sciences, Institute of Food and Beverage Innovation, Wädenswil, Switzerland

Introduction

People over 65 are often excluded from consumer testing even if they meet all other selection criteria. The aim of the present study is to show the **impact of age, consumption frequency and test design** on the results of a central location test (CLT). Six strawberry yoghurts were tested with **two test designs** (serial monadic and simultaneous), **two age groups** (younger than 65 and older than 65) and **three user groups** (non-, light-, heavy user). The results will show whether older consumers have a reduced ability to discriminate between samples and whether a decreased sensitivity that goes along with age can be mitigated by a higher consumption frequency.

Materials and Methods

197 [$n_{(18-64)}=137$, $n_{(65-83)}=60$] and 205 [$n_{(18-64)}=145$, $n_{(65-83)}=60$] people participated in serial monadic and a simultaneous test to evaluate six strawberry yoghurts on a 9-point hedonic scale. Heavy users consumed strawberry yoghurt at least once a week, light users at least once a month and non users less often than once a month. Differences within one group were analyzed with a Friedman test followed by a Nemenyis post-hoc-test ($\alpha=0.05$). Differences between the groups were tested with a Mann-Whitney test ($\alpha=0.05$).

Results: Age groups in a serial monadic and a simultaneous test

Figures 1 and 2 illustrate the differences between the two age groups in the simultaneous and the serial monadic setting. The older consumers gave fewer significant differences in the simultaneous test (Fig. 1). There is no evidence that the older consumers have different preferences compared to the younger consumers.

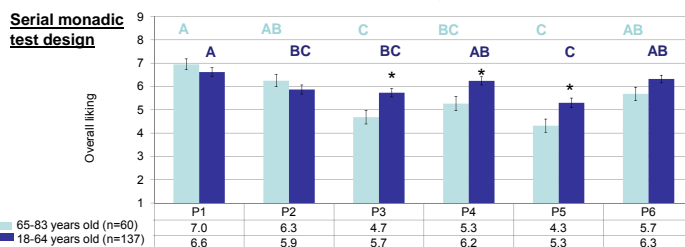
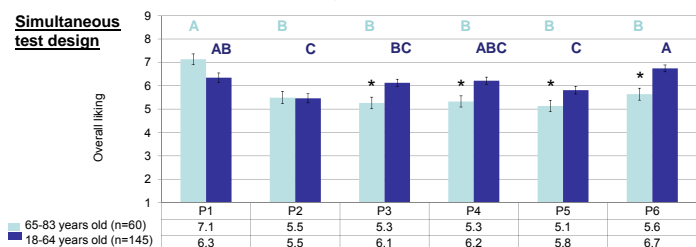


Figure 1: Overall liking of the age groups in the simultaneous test ($P_{65-83\text{years old}, P_{18-64\text{years old}}} < 0.0001$). *Significant differences between the age groups (p -values: $p_{P3} < 0.001$, $p_{P4} < 0.001$, $p_{P5} < 0.000$, $p_{P6} < 0.000$).

Figure 2: Overall liking of the age groups in the serial monadic test ($P_{65-83\text{years old}, P_{18-64\text{years old}}} < 0.0001$). *Significant differences between the age groups (p -values: $p_{P3} < 0.003$, $p_{P4} < 0.009$, $p_{P5} < 0.007$).

Results: Age groups and consumption frequency in a simultaneous test

Figure 3 and Figure 4 display the results of the two age groups in the simultaneous test. The non and the heavy users of both age groups gave the same amount of significant groups. Significant differences between the age groups were found for the non and the light users. Only one difference was found for the heavy users.

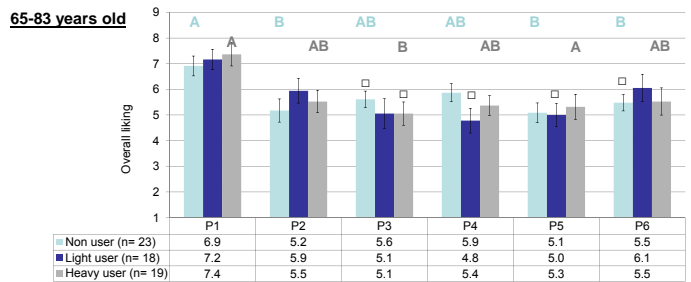
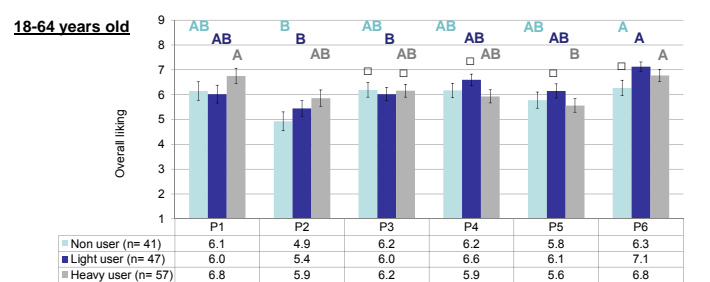


Figure 3: Overall liking of consumers between 18 and 64 years old depending on consumption frequency in the simultaneous test design ($P_{\text{Non user}} < 0.012$, $P_{\text{Light user}} < 0.004$, $P_{\text{Heavy user}} < 0.001$). Δ Significant differences between the age groups in the simultaneous test design (p -values: Non user: $p_{P3} < 0.049$; Light user: $p_{P4} < 0.000$, $p_{P5} < 0.032$; Heavy user: $p_{P3} < 0.045$, $p_{P6} < 0.035$).

Figure 4: Overall liking of consumers between 65 and 83 years old depending on consumption frequency in the simultaneous test design ($P_{\text{Non user}} < 0.001$, $P_{\text{Light user}} < 0.026$ but not detected in the post-hoc-test, $P_{\text{Heavy user}} < 0.010$). Δ Significant differences between the age groups in the simultaneous test design (p -values: Non user: $p_{P3} < 0.049$; Light user: $p_{P4} < 0.000$, $p_{P5} < 0.032$; Heavy user: $p_{P3} < 0.045$, $p_{P6} < 0.035$).

Results: Age groups and consumption frequency in a serial monadic test

Figure 5 and Figure 6 show the results in the serial monadic test. The young heavy users found more differences between the products compared to the old heavy users but no significant difference was found between the age groups regarding the single products. Older non users gave significant differences where the younger group did not.

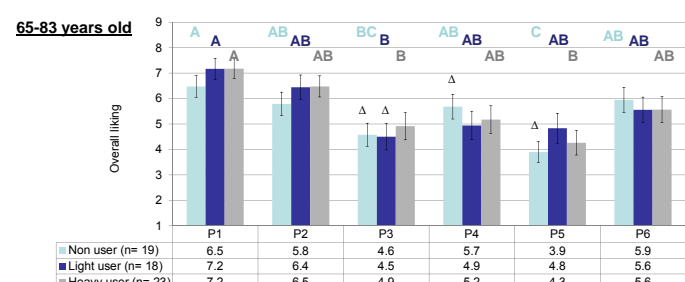
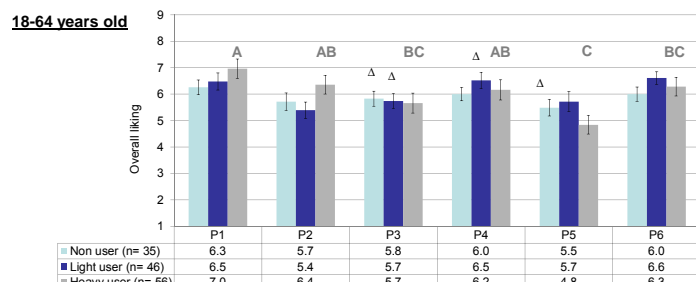


Figure 5: Overall liking of consumers between 18 and 64 years old depending on consumption frequency in the serial monadic test design ($P_{\text{Light user}} < 0.020$ but not detected in the post-hoc-test, $P_{\text{Heavy user}} < 0.0001$). Δ Significant differences between the age groups in the serial monadic test design (p -values: Non user: $p_{P3} < 0.048$, $p_{P5} < 0.011$; Light user: $p_{P3} < 0.047$; $p_{P4} < 0.015$).

Figure 6: Overall liking of seniors depending on consumption frequency in the serial monadic test design ($P_{\text{Non user}} < 0.0001$, $P_{\text{Light user}} < 0.003$, $P_{\text{Heavy user}} < 0.002$). Δ Significant differences between the age groups in the serial monadic test design (p -values: Non user: $p_{P3} < 0.048$, $p_{P5} < 0.011$; Light user: $p_{P3} < 0.047$; $p_{P4} < 0.015$).

Conclusions

Older people discriminated between six products to a less extent in the simultaneous but not in the serial monadic test. Few differences were found between the age groups when the consumers were heavy users of the product. Thus, there is evidence that a higher consumption frequency can compensate a higher age in a CLT.

