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Is a Hint Always Useful in Problem Solving?
The Influence of Pragmatic Distance on Context Effects

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Experiment

Kokinov and Yoveva (1996) demonstrated that illustrations accompanying other problems accidentally placed on the same page as the target problem can influence the type of target problem solution generated by the subjects. Although there was no hint to use these illustrations, it could be the case that subjects have "caught on". Thus it could be questioned whether subjects were really uninformed. The current experiment addresses this question by comparing this context condition with an explicit hint condition.

The purpose of the current experiment is to compare the influence of a context stimulus (an accidental element of the problem solving environment) on subjects' target problem solving performance varying the pragmatic distance between the context stimulus and the target task from a hint condition to a remote context condition:

* **hint condition** – subjects are explicitly informed of the relevance of the illustration (*Hint: Think whether the following picture could help you to solve the above problem*);
* **intermediate condition** – subjects are not informed of the relevance of the illustration, but there is no obvious explanation of the fact that the picture has been presented on the same sheet of paper (no text and no explanation of the reason of this presence);
* **remote condition** – subjects are not informed of the relevance of the illustration, and it is presented as an illustration of a second problem, i.e. there is a reasonable misleading explanation of its presence and its relevance is *a priori* rejected.

Intuition as well as previous experiments seem to support an expectation that if subjects are informed about the relevance of the context stimulus this will have greater effect than if they are not.

Results and Discussion

The results in both the hint and remote experimental conditions are significantly different from the result of the control condition according to the chi-square test – ($\chi^2(2) = 7.74$, $p<0.05$; $\chi^2(2) = 7.04$, $p<0.05$). The intermediate experimental condition does not differ significantly from the control condition ($\chi^2(2) = 2.7$, $p>0.05$).

The more interesting result, however, is the change in the percentage of the correct solutions. In the hint condition the percentage of correct solutions has dropped twice (3%) compared to the control group (6%), while in the remote condition the percentage of correct solutions has increased almost twice (10%). The hint to use the drawing seems to have suppressed the correct solution, while the same drawing presented as a remote context stimulus has facilitated it.

The experimental data has provided an interesting example where although both the hint condition and the remote context condition have influenced the problem solving process, the remote context condition has facilitated the correct solution of the problem, while the hint condition using the same stimulus has inhibited it.

This is a fact which contradicts common-sense expectations, but is in agreement with the implications of the DUAL cognitive architecture (Kokinov, 1994). In the remote context condition the automatic mechanism of spreading activation brings concepts associated with the illustration into consideration and this facilitates the successful solution. In the hint condition subjects are explicitly trying to find a mapping between the context stimulus and the problem at hand using reasoning mechanisms like marker passing and structure correspondence building. They fail in this case because of the fact that the shared relations are not obvious.

Thus in certain cases explicit hints are not facilitating the problem solving process while implicit ones might turn out to be more efficient making it possible to use automatic spreading activation processes.

Acknowledgments

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