Investigating the Role of Creativity in the Design of Environmentally Sustainable Solutions

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RQ: Are creative solutions – i.e., unique and useful solutions – also environmentally sustainable?

Hypotheses:
1. There is a relationship between uniqueness and environmental sustainability. Is this relationship positive or negative?
2. There is a relationship between usefulness and environmental sustainability.

Design Prompt
“You are tasked with designing a solution to help improve access to clean water and sanitation for a farmer and his family in a remote village in Sub-Saharan Africa.”

Creativity can support the design of environmentally sustainable solutions, but only if designers appropriately emphasize uniqueness and usefulness.

Spearman Correlations between Components of Creativity and the Sustainability Latent Factors

<table>
<thead>
<tr>
<th>Sustainability Latent Factor</th>
<th>Components of Creativity</th>
<th>Overall Creativity</th>
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</thead>
<tbody>
<tr>
<td>Material Reuse</td>
<td>Uniqueness 0.30</td>
<td>Usefulness &lt;0.01</td>
</tr>
<tr>
<td>Maximizing Utility &amp; Accessibility</td>
<td>-0.10</td>
<td>0.52</td>
</tr>
<tr>
<td>Corrective Measures for Use</td>
<td>0.33</td>
<td>0.17</td>
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</tbody>
</table>

Collaborators
Dr. Elizabeth Starkey and Dr. Sarah Ritter (Penn State University)
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Julia Greeley (Lafayette College)

References