Explanation of variables in file “Script for TED ISP…”

“Fixed” set of variables for each topic. For example, for the crystal experiment (which, as given in Variables Summary for BRM 5.9.18, is Area = 1 and Topic = 1).

Case 1: Student selects (or is given) water temperature (A1-T1-V1) as focal variable in RQ mod.

|  |  |
| --- | --- |
| A1-T1-V1 = water temperature | A1-T1-V1 = V(chosen/given) |
| A1-T1-V2 = crystal type | A1-T1-V2 = V(not chosen/given)1 |
| A1-T1-V3 = initial amount of crystal on string | A1-T1-V3 = V(not chosen/given)2 |
| A1-T1-V4 = String type | A1-T1-V4 = V(not chosen/given)3 |

All variable names (in both left & right columns) stay fixed throughout Study 1/TED, after student selects or is given RQ in RQ module.

Experiment #2 (Case 1):

Chose/given: water temperature (in RQ mod), given Experiment #2 will be:

Does the initial amount of crystal on string affect (DV)?

|  |  |  |
| --- | --- | --- |
|  | Condition 1 | Condition 2 |
| A1-T1-V1 = water temperature | Room temp | Room Temp |
| A1-T1-V2 = crystal type (confound) | Salt | Brown sugar |
| A1-T1-V3 = initial amount of crystal on string (now TV) | A little | None |
| A1-T1-V4 = String type | Twine | Twine |

OR (preferred: current TV in first row of table):

|  |  |  |
| --- | --- | --- |
|  | Condition 1 | Condition 2 |
| A1-T1-V3 = initial amount of crystal on string (now TV) | A little | None |
| A1-T1-V4 = String type | Twine | Twine |
| A1-T1-V1 = water temperature | Room temp | Room Temp |
| A1-T1-V2 = crystal type (confound) | Salt | Brown sugar |

Experiment #2 (Case 2): Student selects (or is given) crystal type (A1-T1-V2) as focal variable in RQ mod.

|  |  |
| --- | --- |
| A1-T1-V1 = water temperature | A1-T1-V1 = V(not chosen/given)3 |
| A1-T1-V2 = crystal type | A1-T1-V2 = V(chosen/given) |
| A1-T1-V3 = initial amount of crystal on string | A1-T1-V3 = V(not chosen/given)1 |
| A1-T1-V4 = String type | A1-T1-V4 = V(not chosen/given)2 |

|  |  |  |
| --- | --- | --- |
|  | Condition 1 | Condition 2 |
| A1-T1-V1 = water temperature | Room temp | Room Temp |
| A1-T1-V2 = crystal type | Salt | Salt |
| A1-T1-V3 = initial amount of crystal on string | A little | None |
| A1-T1-V4 = String type (now TV) | Twine | Yarn |

OR (preferred: current TV in first row of table):

|  |  |  |
| --- | --- | --- |
|  | Condition 1 | Condition 2 |
| A1-T1-V4 = String type (now TV) | Twine | Yarn |
| A1-T1-V1 = water temperature | Room temp | Room Temp |
| A1-T1-V2 = crystal type | Salt | Salt |
| A1-T1-V3 = initial amount of crystal on string | A little | None |

Experiment #2 (Case 3): Student selects (or is given) initial amount of crystal on string (A1-T1-V3) as focal variable in RQ module.

|  |  |
| --- | --- |
| A1-T1-V1 = water temperature | A1-T1-V1 = V(not chosen/given)2 |
| A1-T1-V2 = crystal type | A1-T1-V2 = V(not chosen/given)3 |
| A1-T1-V3 = initial amount of crystal on string | A1-T1-V3 = V(chosen/given) |
| A1-T1-V4 = String type | A1-T1-V4 = V(not chosen/given)1 |

|  |  |  |
| --- | --- | --- |
|  | Condition 1 | Condition 2 |
| A1-T1-V1 = water temperature (now TV) | Room temp | Hot |
| A1-T1-V2 = crystal type | Salt | Salt |
| A1-T1-V3 = initial amount of crystal on string | A little | A little |
| A1-T1-V4 = String type | Twine | Yarn |

Experiment #2 (Case 4): Student selects (or is given) string type (A1-T1-V4) as focal variable in RQ module.

|  |  |
| --- | --- |
| A1-T1-V1 = water temperature | A1-T1-V1 = V(not chosen/given)1 |
| A1-T1-V2 = crystal type | A1-T1-V2 = V(not chosen/given)2 |
| A1-T1-V3 = initial amount of crystal on string | A1-T1-V3 = V(not chosen/given)3 |
| A1-T1-V4 = String type | A1-T1-V4 = V(chosen/given) |

|  |  |  |
| --- | --- | --- |
|  | Condition 1 | Condition 2 |
| A1-T1-V1 = water temperature | Room temp | Hot |
| A1-T1-V2 = crystal type (now TV) | Salt | Brown sugar |
| A1-T1-V3 = initial amount of crystal on string | A little | A little |
| A1-T1-V4 = String type | Twine | Twine |

OR (preferred: current TV in first row of table):

|  |  |  |
| --- | --- | --- |
|  | Condition 1 | Condition 2 |
| A1-T1-V2 = crystal type (now TV) | Salt | Brown sugar |
| A1-T1-V3 = initial amount of crystal on string | A little | A little |
| A1-T1-V4 = String type | Twine | Twine |
| A1-T1-V1 = water temperature | Room temp | Hot |

In summary, we’ll need 4 experimental set-ups for each of the 8 topics for Experiment #2 in Study 1.

For Experiment #1, we only need one experimental set-up for each of the 8 topics.

For each experiment, all 4 variables will be set to L1 and L2 for Condition 1 and 2 (respectively).