Appendix A: List of target vocabulary items and their definitions

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| **Target Item** | **Definition** |
| THEME=BUILDING |
| adimper | A hand tool that is used to hold or twist a nut or bolt.  |
| ancring | A horizontal piece of wood or stone that forms the bottom of an entrance. |
| belouse | Paving material used for garden paths and sidewalks. |
| benera | A painting, pattern or design on a wall or ceiling. |
| braque | A device (a plate, wall, or screen) used to reduce noise by absorption in a recording studio or an apartment. |
| cawder | A small area in a room that is created by building part of one wall further back than the rest of the wall. |
| cresion | A system of maintaining a set temperature in a building. |
| cumbage | A mechanical device designed for lifting people or heavy objects. |
| densic | Describes a type of acid used in liquid cleaning substances. |
| derind | To remove earth by digging and scooping it out within a clearly marked area. |
| divent | A surveying instrument, used to measure the inclination of a line from the observer to another point. |
| enaden | To determine physical properties of something for the building design or construction purposes. |
| foveer | To make something stronger, especially in order to protect it. |
| gambrel | A roof with two sides, each of which has a shallower slope above a steeper one. |
| glisent | A thick smooth floor covering or coating. |
| grotal | Showing boundaries and extent of land, and to whom it belongs (describing a map or survey). |
| hacord | A piece of furniture used for storage, typically one that is elaborately decorated or antique. |
| imigate | To remove an obstruction from something, especially a pipe or drain. |
| inbort | A low sink installed in a bathroom for washing lower parts of the body. |
| joition | The rebuilding, repairing, enlarging or extending of a building. |
| lithic | Describes a type of column popular in ancient Greece. |
| liviod | A metal or synthetic medium that carries electricity or data over a distance. |
| mambing | The outside weather-resistant surface of a building. |
| monton | A multi-purpose saw that is used in various building jobs. |
| narend | A structure attached to the exterior of a building often forming a covered entrance. |
| nathin | A strip of land, raised bank, or terrace bordering a river or canal. |
| obeche | The wood of an African tree used especially for veneering, i.e., decorating or covering with a very thin layer of wood. |
| octrain | A powdery substance that is mixed with sand, gravel, and water to make building material. |
| onotion | A flat piece of metal around a keyhole, often with a rotating cover that can be swung aside to insert the key. |
| pembler | A construction worker whose job is to lay tiles. |
| pholine | A strong beam forming a main supporting element in a framework of a building. |
| ploost | To treat glass making it non-transparent by applying a metallic or plastic coating that reflects light. |
| poulon | A narrow open container used in construction work for washing or mixing building materials. |
| rintor | A person who is learning a trade or profession from a skilled employer, getting low wages or working for free. |
| saltion | A low protective wall at the edge of a balcony or roof. |
| settory | A simple building in a forest or mountain area that can be used as a shelter by travellers. |
| shilot | A decorative wooden border at the top of a window used to conceal curtain fittings. |
| spozing | Becoming covered with very thin or fine cracks (about a glaze on pottery or glue). |
| strieve | To cover (a wall, surface or structure) with a substance which hardens into a smooth surface. |
| tattix | A metal frame with bars or wire across it used to cover an opening, such as air duct or drain. |
| triting | Joining two pieces of metal by heating and melting a filler (such as copper and zinc) that bonds the adjoining surfaces. |
| troler | A powerful construction vehicle, resembling a tractor, with a broad upright blade at the front.  |
| vartair | A set of steps attached to poles of scaffolding for construction workers to climb up and down. |
| verster | A device which measures and records electric power or gas usage by households or businesses. |
| walent | Describes materials that is able to stick fast to a surface or object. |
|  |  |
|  |
| THEME=HEALTH |
| archvil | A muscle group of the upper back responsible for stabilising the spine and the movement of the neck and shoulders. |
| astiery | The ability of a hollow organ to swell in response to applied pressure. |
| auspond | To prepare plants and herbs to be used for medicinal purposes. |
| befent | An establishment providing care for the terminally ill.  |
| bendice | An infection characterised by reddening and itching, and may lead to tissue destruction and scarring. |
| blopia | Describes a swelling of a part of the body caused by an abnormal growth of tissue, usually non-malignant. |
| chotic | Describes a person feeling dizzy, nauseous, and very weak, for example, after surgery. |
| clamage | Sterile covering that is put on a wound to protect it from infection or further damage. |
| consate | To record medical information about a patient and his/her medical history. |
| cremia | An immune system condition that results in hair loss in small, isolated areas on the scalp that may or may not result in permanent hair loss. |
| drenist | A person who is trained to do medical work, especially emergency first aid, but is not usually a fully qualified physician. |
| elbide | To feel intense, often uncontrollable urge for something. Often a symptom of dependence on drugs. |
| englane | To administer medication, vaccine, or fluids directly into a vein or veins. |
| flotty | Quick to become extremely bad or intense. |
| frount | To determine the nature of an illness through a physical examination, medical tests or other procedures. |
| glorapy | Psychological treatment that uses mindfulness to help a person recognize and accept thoughts and feelings but not be controlled by them. |
| grasion | A return to a former state or a bad habit after an apparent improvement. |
| hillias | A thick substance secreted by the lining of the respiratory passages. |
| houson | Clothes worn by medical professionals. |
| hyplea | A condition in which the stomach produces little or no acid, which causes stomach pain and keeps the body from absorbing vitamins and nutrients. |
| imology | A branch of medical sciences concerned with the study of the internal organs, their functions and diseases. |
| inctous | Spreading from one person or organism to another, typically by direct contact. |
| lorrisy | A type of blood clot that may partially or completely block an artery or a vein. |
| louves | A special lens used to correct vision in people with eye defects, such as astigmatism. |
| mausine | A medical syringe, used for injecting medical substances directly into internal organs. |
| milgery | A cosmetic surgery procedure used to make the abdomen thinner and more firm. |
| myndrox | A pattern of falling asleep and waking up earlier than wanted that worsens progressively over time. |
| novent | A machine used in hospitals to maintain breathing, especially when long-term artificial breathing is required. |
| nubicy | A powerful drug that interferes with the nervous system to block the sensation of pain. |
| offium | A liquid remedy for lung disorders and diseases used as a nasal spray or an inhaler. |
| opture | Sudden violent movements caused by electrical signal breakdown in the brain. |
| prenge | To stop blood vessels from bleeding, using a surgical tool, such as a clamp, or other methods.  |
| respoul | To bring someone or something back to life. |
| riture | A medical condition in which there is a damage in the continuity of the bone as a result of high force impact or stress. |
| rulist | A doctor who focuses on the muscles and the spinal system and the body's ability to heal itself. |
| sinton | Inflammation of a nasal sinus. |
| sodence | A severe mental disorder in which contact with reality is lost or highly distorted. |
| stuler | A device for supporting muscles, joints, or spine which are weak, deformed or injured. |
| tarthol | A surgical instrument used for clamping and grasping tissues and blood vessels or holding organs and objects. |
| thintor | A medical specialist who assists with childbirth and care of the mother. |
| thople | An artificial replacement or cover for the upper part of a tooth.  |
| vasure | A strong reaction caused by extreme physical sensitivity to particular substances or conditions; it may result in sneezing, itchiness and swelling. |
| vislia | A section of the brain that is responsible for detecting fear and preparing for emergency events. |
| vistise | To remove surgically. |
| wralic | Referring to inherited characteristics. |

Appendix B: Experiment 1

**Learning treatment**

**Table B.1a.** Means and standard deviations (in parenthesis) of the inference accuracy (descriptives)

|  |  |  |  |
| --- | --- | --- | --- |
| Treatment | Theme=building | Theme=health | All themes |
| CTRL | 0.80 (0.40) | 0.88 (0.32) | 0.84 (0.37) |
| ERL | 0.97 (0.18) | 0.98 (0.15) | 0.97 (0.17) |
| TAE | 0.80 (0.40) | 0.87 (0.33) | 0.84 (0.37) |
| All treatments | 0.86 (0.35) | 0.91 (0.29) | 0.88 (0.32) |

*Note*, CTRL=CWL without definitions, ERL=errorless treatment; TAE=trial-and-error treatment followed by definitions

**Table B.1b.** Analysis of the inference accuracy in the initial reading treatments: fixed effects

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Estimate | *SE* | *z* | *p* | Odds ratio | 95% CIs | *d* |
| (Intercept) | 1.96 | 0.24 | 8.30 | < .001 |  |  |  |
| Treatment=ERL | 2.16 | 0.17 | 12.51 | < .001 | 8.69 | 6.19,12.20 | 1.19 |
| Treatment=TAE | -0.03 | 0.11 | -0.24 | .809 | 0.97 | 0.79,1.20 | 0.01 |
| Theme=health | 0.72 | 0.32 | 2.26 | .024 | 2.06 | 1.10,3.86 | 0.40 |
| Guess.RT.c | 0.29 | 0.09 | 3.34 | .001 | 1.33 | 1.13,1.58 | 0.16 |

Intercept levels: Treatment=CTRL, Theme=building. *Note*, CTRL=CWL without definitions, ERL=errorless treatment; TAE=trial-and-error treatment followed by definitions; Guess.RT.c=inference RT (centred).

**Meaning generation**

**Table B.2a.** Means and standard deviations (in parenthesis) of the MG accuracy scores (descriptives)

|  |  |  |  |
| --- | --- | --- | --- |
| Treatment | Immediate MG | Delayed MG | All sessions |
| CTRL | 0.32 (0.47) | 0.23 (0.42) | 0.28 (0.45) |
| ERL | 0.35 (0.48) | 0.26 (0.44) | 0.30 (0.46) |
| TAE | 0.41 (0.49) | 0.30 (0.46) | 0.36 (0.48) |
| All treatments | 0.36 (0.48) | 0.26 (0.44) | 0.31 (0.46) |

*Note*, CTRL=CWL without definitions, ERL=errorless treatment; TAE=trial-and-error treatment followed by definitions.

**Table B.2b.** Analysis of theMG accuracy: fixed effects

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Estimate | *SE* | *z* | *p* | Odds ratios | 95% CIs | *d* |
| (Intercept) | -2.83 | 0.31 | -9.04 | < .001 |  |  |  |
| Treatment=ERL | 0.50 | 0.37 | 1.36 | .175 | 1.64 | 0.80, 3.36 | 0.27 |
| Treatment=TAE | 1.10 | 0.24 | 4.64 | < .001 | 3.00 | 1.88, 4.77 | 0.61 |
| Guess.ACC=1 | 1.14 | 0.24 | 4.78 | < .001 | 3.13 | 1.96, 4.99 | 0.63 |
| Session=immediate | 0.82 | 0.09 | 8.63 | < .001 | 2.27 | 1.88, 2.73 | 0.45 |
| Treat=ERL:Guess.ACC=1 | -0.48 | 0.36 | -1.32 | .188 | 0.62 | 0.30,1.26 | 0.26 |
| Treat=TAE:Guess.ACC=1 | -0.70 | 0.23 | -3.00 | .003 | 0.50 | 0.32,0.79 | 0.38 |

Intercept levels: Treatment=CTRL, Guess.ACC=0, Session=delayed. *Note*, CTRL=CWL without definitions, ERL=errorless treatment; TAE=trial-and-error treatment followed by definitions, Guess.ACC=Inference accuracy.

**Self-paced reading**

**Table B.3a** Analysis oftheinverse-transformed RTs on *n*+1 in the immediate SPR: fixed effects

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | Estimate | *SE* | *df* | *t* | *p* | *d* |
| (Intercept) | -2.93 | 0.10 | 56.58 | -28.07 | < .001 |  |
| Treatment=ERL | -0.02 | 0.03 | 4503.89 | -0.67 | .504 | 0.02 |
| Treatment=TAE | -0.07 | 0.03 | 4509.24 | -2.74 | .006 | 0.07 |
| RTinv.c | 0.25 | 0.05 | 61.20 | 5.60 | < .001 | 0.23 |
| Theme=health | -0.33 | 0.07 | 70.27 | -5.03 | < .001 | 0.30 |

Intercept levels: Treatment=CTRL, Theme=building. *Note*, CTRL=CWL without definitions, ERL=errorless treatment; TAE=trial-and-error treatment followed by definitions, RTinv.c=RTs on the preceding target (inverse transformed, centred). *Note*, *p* values were obtained with Satterthwaite’s approximation in the *lmerTest* package in R.

**Table B.3b** Analysis of variance on the theinverse-transformed RTs on *n*+1 in the immediate SPR; F tests with the Satterthwaite approximation for degrees of freedom

|  |  |  |
| --- | --- | --- |
| Parameter | Statistic | *p* |
| Treatment | 4.09(2, 4511.2) | .017 |
| RTinv.c | 31.38(1, 61.2) | < .001 |
| Theme | 25.27(1, 70.3) | < .001 |

*Note*, RTinv.c=RTs on the preceding target (inverse transformed, centred).

**Appendix C: Experiment 2**

**Learning treatment**

**Table C.1a** Means and standard deviations (in parenthesis) of the inference accuracy (descriptives)

|  |  |  |  |
| --- | --- | --- | --- |
| Treatment | Theme=building | Theme=health | All themes |
| CTRL | 0.51 (0.50) | 0.54 (0.50) | 0.53 (0.50) |
| ERL | 0.79 (0.40) | 0.85 (0.36) | 0.82 (0.38) |
| TAE | 0.54 (0.50) | 0.57 (0.49) | 0.56 (0.50) |
| All treatments | 0.61 (0.49) | 0.66 (0.47) | 0.63 (0.48) |

*Note*, CTRL=CWL without definitions, ERL=errorless treatment; TAE=trial-and-error treatment followed by definitions.

**Table C.1b** Analysis of the inference accuracy in the initial reading treatments: fixed effects

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Estimate | *SE* | *z* | *p* | Odds ratio | 95% CIs | *d* |
| (Intercept) | 0.18 | 0.17 | 1.08 | .282 |  |  |  |
| Treatment=ERL | 1.98 | 0.18 | 11.20 | < .001 | 7.21 | 5.10,10.19 | 1.09 |
| Treatment=TAE | 0.12 | 0.09 | 1.25 | .212 | 1.13 | 0.94,1.35 | 0.07 |
| Time-in-ESC.c | 0.24 | 0.07 | 3.38 | .001 | 1.27 | 1.11,1.46 | 0.13 |
| Guess.RT.lg.c | 0.57 | 0.08 | 6.99 | < .001 | 1.77 | 1.51,2.07 | 0.31 |

Intercept levels: Treatment=CTRL. *Note*, CTRL=CWL without definitions, ERL=errorless treatment; TAE=trial-and-error treatment followed by definitions, Time-in-ESC.c=time spent in English-speaking countries (centred), Guess.RT.lg.c=inference RT (log-transformed, centred).

**Meaning generation**

**Table C.2a** Means and standard deviations (in parenthesis) of the MG accuracy scores (descriptives)

|  |  |  |  |
| --- | --- | --- | --- |
| Treatment | Immediate MG | Delayed MG | All sessions |
| CTRL | 0.13 (0.34) | 0.06 (0.23) | 0.09 (0.29) |
| ERL | 0.15 (0.36) | 0.07 (0.26) | 0.11 (0.32) |
| TAE | 0.20 (0.40) | 0.09 (0.29) | 0.14 (0.35) |
| All treatments | 0.16 (0.37) | 0.07 (0.26) | 0.12 (0.32) |

*Note*, CTRL=CWL without definitions, ERL=errorless treatment; TAE=trial-and-error treatment followed by definitions.

**Table C.2b** Analysis of theMG accuracy: fixed effects

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Estimate | *SE* | *z* | *p* | Odds ratios | 95% CIs | *d* |
| (Intercept) | -5.07 | 0.35 | -14.38 | < .001 |  |  |  |
| Treatment=ERL | 0.25 | 0.35 | 0.71 | .479 | 1.28 | 0.64,2.55 | 0.14 |
| Treatment=TAE | 1.05 | 0.25 | 4.22 | < .001 | 2.86 | 1.76,4.67 | 0.58 |
| Guess.ACC=1 | 1.01 | 0.18 | 5.53 | < .001 | 2.74 | 1.92,3.91 | 0.56 |
| Session=immediate | 1.55 | 0.14 | 10.70 | < .001 | 4.71 | 3.55,6.26 | 0.86 |
| Treat=ERL:Guess.ACC=1 | -0.29 | 0.34 | -0.85 | .397 | 0.75 | 0.39,1.46 | -0.16 |
| Treat=TAE:Guess.ACC=1 | -0.58 | 0.23 | -2.52 | .012 | 0.56 | 0.36,0.88 | -0.32 |

Intercept levels: Treatment=CTRL, Guess.ACC=0, Session=delayed. *Note*, CTRL=CWL without definitions, ERL=errorless treatment; TAE=trial-and-error treatment followed by definitions, Guess.ACC=Inference accuracy.

**Self-paced reading**

**Table C.3a** Analysis oftheinverse-transformed RTs on *n*+1 in the delayed SPR: fixed effects

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | Estimate | *SE* | *df* | *t* | *p* | *d* |
| (Intercept) | -2.94 | 0.10 | 43.08 | -29.59 | < .001 |  |
| Treatment=ERL | -0.02 | 0.02 | 4237.04 | -0.72 | .472 | 0.02 |
| Treatment=TAE | -0.06 | 0.02 | 4234.47 | -2.79 | .005 | 0.07 |
| RTinv.c | 0.27 | 0.04 | 53.68 | 6.47 | < .001 | 0.29 |
| Comp.ACC | -0.06 | 0.03 | 239.33 | -2.09 | .038 | 0.06 |
| Vocab.lg.c | -1.05 | 0.61 | 47.36 | -1.71 | .093 | 0.47 |

Intercept levels: Treatment=CTRL. *Note*: CTRL=CWL without definitions, ERL=errorless treatment; TAE=trial-and-error treatment followed by definitions, RTinv.c=RTs on the preceding target (inverse transformed, centred), Comp.ACC=comprehension accuracy in the SPR, Vocab.lg.c=vocabulary test scores (log-transformed, centred). *Note*, the effect of Comp.ACC became non-significant after the *p* value adjustment for false discovery (adjusted *p*=.104); the *p* value for the effect of Vocab.lg.c was adjusted to .205.

**Table C.3b** Analysis of variance on the theinverse-transformed RTs on *n*+1 in the delayed SPR; F tests with the Satterthwaite approximation for degrees of freedom

|  |  |  |
| --- | --- | --- |
| Parameter | Statistic | *p* |
| Treatment | 4.19(2,4235.4) | .015 |
| RTinv.c | 41.83(1,53.7) | < .001 |
| Comp.ACC | 4.37(1,239.3) | .038 |
| Vocab.lg.c | 2.94(1,47.4) | .093 |

*Note*: RTinv.c=RTs on the preceding target (inverse transformed, centred), Comp.ACC=comprehension accuracy in the SPR, Vocab.lg.c=vocabulary test scores (log-transformed, centred). *Note*, the effects of Comp.ACC and Vocab.lg.c became non-significant after the *p* value adjustment for false discovery.