Analysis of undergraduate biology students' multimodal depiction of experimental design using SFL framework

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We present a multimodal analysis using SFL (Martin et al., 2021) to investigate the extent of image and language co-articulation in undergraduate biology students' description of experimental design about olfactory responses of Drosophila larvae (Khurana & Siddiqi, 2013). According to Halliday and Martin, (1993), scientific explanations are characterized by nominalization, higher percentage of action verbs organized in logical sequence, whereas experiments are characterized by use of imperatives. For analysing scientific explanation of mitosis, Unsworth (2021) applied composition, activity, classification and property dimensions. We apply this framework to analyse multimodal depiction of experimentation genre (Kharatmal et al., 2022). The aggregation of compositional relations interconnected with activity showing progression is observed. The intermodal construal of composition and activity was observed in image and language for atleast two activities: [trapping fruit-flies (trap bottle)→(bait in bottle)→(trapped flies)] ; [setting up of single line culture (banana bottle)→(gravid female)→(standard media)→(observe)]. This was depicted as linear or cyclical with atleast 3-4 micrographs or standalone annotated image. The activity of [recording ORI] was depicted using image and verbiage with annotations. The property of `duration of eggs hatching into larvae', `percentage of agar media and sucrose solution', `recording time of observation', `concentration of dilution', `measurement of ringer's solution', etc. are quantifiable as change in state. Though experiment genre may have commonalities with explanation genre, however use of property to depict rich descriptions and quantification seems to be distinctive in experiment genre with using imperatives. These investigations can bear pedagogical implications for biology language.