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$\times$ [GML+23].

1 [LRS21, Zin15]. **12** [BBSPK22, GES14, GYSH19, HAGM14, HAG15b, JK20, OWK21, TM14, TSAA+23]. **16-18** [All23]. **19** [MSV+23].

2 [RSL22].

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OWK21, PLF22, PGJS17, PM09, RVAN15, RTE21, RWK+15, RLN+22, RVI09, RSL22, SAyC+21, SH18b, SKM13, SS23, TS20, TP23, TM10, TM11a, TM11b, TM14, TC19, TM22, TWH18, TSAA+23, VMFG17, VSK22, YMZ+14, NCLN13, Sor13, TM09, CB19]. **education-friendly** [NCLN13]. **Educational** [Har21, KS14, LRH+22, MC19, UR17, ZPB13]. **Educator** [BA17]. **Effect** [Blu22, MMFR20, RHSS20]. **Effective** [All23, ORS16, RJJ10, LGP13]. **Effectively** [ORKH09]. **Effectiveness** [MGM+23]. **Effects** [DJHGI19, DBR+20, MS11]. **Efficacy** [LBT20, RCS11, CMSP+19, LY21, ZNF+20]. **Effort** [RKM20]. **Electronic** [JK20, KLS+14]. **Elementary** [KCB+23, LIG22, VTB+20, YMZ+14]. **Elo** [VMAG22]. **Elo-rating** [VMAG22]. **Else** [MRG17, RP19]. **Emancipation** [EBC+21]. **Embodied** [MCK17, MC19]. **Emerging** [RB21]. **Emotions** [AL22]. **emphasizing** [IT13]. **Empirical** [AvdM21, GGT20, MFCLG19, MTGM21, Sho23, SS13]. **Empiricism** [HCSAz22]. **Employability** [IDC+19]. **Employers** [SWL+22]. **Enabling** [IDC+19, LG21]. **Encourage** [ETN+21]. **Endeavors** [CAL15]. **Engagement** [CDB+22, MBSBA09]. **Engaging** [KFME11]. **Engineering** [Akd23, AL22, BTF+19, CDK+14, CB19, DTT16, DJGIO20, FEC17, GVA22, Joh19, KFME11, MFR13, MPTV16, Mit14, Pet19, VMFG17]. **Engineers** [BCZ19, GGT20, MGM+23]. **Enjoyment** [ZD15]. **Enter** [LG21]. **Entering** [RB21]. **Enthusiasm** [Lar16]. **Entry** [TM11b]. **Environment** [ALP12, CDK+14, CDB+22, DMBP22, Köl10, LMGVS+16, MRR+10]. **Environments** [FU10b, GYSH19, GBB+17, IDC+19, Kie09, VFFT16]. **Epistemological** [Ros23]. **Equation** [LRJ14]. **Equations** [BKZL23]. **Equitable** [GYSH19]. **Equity** [FKG17, IKWR22, KFME11, VS22, WCPF20, ZCJR20]. **Equity-based** [VS22]. **Errors** [MK19, MFA23, PDF15, TSV18]. **Essential** [ZD15]. **Estimating** [BKZL23]. **Ethical** [HM22]. **Ethics** [HM22, MAHC+22, SSF+19]. **Evaluating** [VGRM19, WCPF20]. **Evaluation** [HCAT23, Joh19, KM16, KLM15, LFU23, PHP+22, RSPB17, Rit09, Shi16, Wan11, BC13, LY21]. **Evaluations** [UFVI09]. **Event** [LMH21]. **Event-driven** [LMH21]. **Everyday** [RvJP20]. **Evidence** [MR22, MGM+23]. **Evidence-Based** [MR22]. **Exacerbates** [Ros23]. **Examination** [Ip12, WK10]. **Examining** [DMBP22, JMN+22, RTE21, RHSS20, Zin15]. **Examples** [BNP11, MJC23]. **Executing** [SH18a]. **Execution** [BS10]. **Exemplars** [LMB+22]. **Exercise** [SGHZS19]. **Exercises** [DJHGI19, KJH19]. **Existing** [BF23]. **Expanding** [HM19]. **Expect** [GVA22]. **Experience** [FKG17, Har21, Pet19]. **Experienced** [AL22, ET12, RB22]. **Experiences** [Bar09, ECF18, KFME11, LRH+22, NAG+23, PG23, YBV23]. **Experiment** [Bol22, WX18]. **Experimental** [VI13]. **Expert** [MFA23]. **Experts** [GVA22, SDBJ19]. **Explain** [VMFG17]. **Exploration** [LZRO21, MPTV16]. **Exploring** [ET12, GM11, HM19, VS22, Vog21, SNG+22]. **Expository** [WSP+11]. **Extending** [KKNL21, MBSBA09]. **Extensive** [Wan11]. **External** [SBH+18]. **Eyes** [KDV22, MRG17].

Fabrication [RG19]. **Face** [MGM+23]. **Face-to-face** [MGM+23]. **Facilitate** [Mit14]. **Facilitating** [SSSC18]. **Factors** [DJGIO20, DBG+23, LRJ14, ZD15]. **Faculty** [Bar09, GMM17, LSHY22]. **Families** [MSV+23]. **Feedback** [HBVTN21, KSCP22, KJH19, ORS16]. **Female** [KWB20, LBT20]. **Fiction** [GM14]. **Field** [SCA+10]. **Final** [CGZ+20].

Final-year [CGZ+20]. **Findings** [MR22]. **Finnish** [KV15]. **First** [AL22, BHHMG21, CK09, NGK11, VCMV23]. **First-year** [AL22, VCMV23]. **Fit** [BBG12]. **Fitting** [Ip12]. **Fix** [Ber23]. **Flipped** [LSSM19]. **Flipping** [IT17]. **Focus** [Ric09]. **Following** [LMGVS+16]. **Forging** [LSHY22]. **Formal** [GEME14, LBT20]. **Formation** [Ric09]. **Formative** [HBVTN21, KSCP22]. **Formulation** [TSV18]. **Forum** [CHP+18]. **Forward** [RS14, TM15]. **FOSS** [BMB+18]. **Foundation** [CHH+11]. **Four** [TSAA+23]. **Fractal** [EKSW11]. **Fragile** [MW18]. **Framework** [AMD22, FEC17, GBB+17, LSSM19, MHP20, MAHC+22, MW22]. **Frances** [SPR12]. **free** [RMM21]. **French** [BDDGT14]. **friendly** [NCLN13]. **Fringe** [MW18]. **fsQCA** [PGJS17]. **Functional** [IT17]. **Future** [LSHY22, TS20].

Gains [PGJS17]. **Game** [DCW19, HHM19, LK19, McG12a, RWK+15, Rit09, TAL17, VGRM19, VGM+23, Wan11]. **Game-Based** [HHM19, TAL17]. **Games** [Ip12, WDC15, WDCT20]. **Gamification** [AZK+20, MFCLG19, MTGM21, RPT+22]. **Gap** [Akd23, LRVW14]. **Gaps** [GGT20, GVA22]. **Gender** [BVNN22, CHP+18, Har21, KFME11, KKNL21, RVSW23, RCS11, Wag16]. **Generalized** [BKZL23]. **Generalizing** [RVSW23]. **Generation** [BLNC09, CHU+09, EBC+21, KJH19]. **Generic** [SKM13]. **Genesis** [TC19]. **Georgia** [GEME14]. **Germany** [KMB+15]. **Get** [MS19]. **Getting** [OPC17]. **Girl** [OPC17]. **Girls** [ETN+21]. **GitHub** [HCAT23]. **Global** [BTF+19, CB19, FDW19, IDC+19, SGHZS19, VGRM19, VGM+23]. **Go** [DMBP22]. **Goals** [CHP+18, MS11, SPC19, Zin15]. **Google** [RSPB17]. **Governance** [GND19]. **GPU** [DSU20]. **Grade** [KKNL21, SA20, TWH18]. **Grades** [Zin15]. **Grading** [AvdM21]. **Graduate** [KG22]. **Graduates** [SWL+22]. **Grand** [TP23]. **Graphical** [SSB+23]. **Graphics** [She13]. **GRASP** [TSK12]. **Greater** [GML+23]. **Greedy** [VI13]. **Greek** [TAL17]. **Greenfoot** [Köl10, UCK+10]. **Grounded** [HM22, RP19]. **Group** [AvdM21, Ric09]. **Groups** [RBSS11]. **GSD** [VGRM19]. **GSD-Aware** [VGRM19]. **GSE** [HM19]. **Guest** [BB10]. **Guide** [SH18a]. **Guided** [NGK11]. **Guidelines** [TP23].

H [BMB+18]. **H/FOSS** [BMB+18]. **Hackathons** [Har21]. **Happens** [RMM21]. **Hard** [SPC19, WBK+22]. **Hardas** [DMBP22]. **Hardware** [BC12, LRVW14]. **hegemonic** [EBC+21]. **help** [HS13]. **Helping** [RT15]. **Heuristic** [KM16]. **High** [BSS20, CKSS21, DLM11, KLS+14, MFM+16, MSV+23, MSH10, Par23, TPQE18, WW17, WDK20, ZNF+20, ZCJR20, ZJWF11, AGEL13]. **High-Level** [TPQE18]. **high-performance** [AGEL13]. **Higher** [AMD22, CJS+17, GbGG+23, ILRD20, MSV+23]. **Hiring** [SWL+22]. **Hispanic** [GHT+11]. **Hispanic-Serving** [GHT+11]. **Hispanics** [GHT+11]. **Historical** [BDDGT14, LZRO21]. **History** [BCD10]. **Holistic** [NGK11]. **Home** [BBF+21]. **Hours** [PHRC21]. **HTML** [PDF15]. **Human** [KG22, RC13]. **human-centered** [RC13]. **Human-computer** [KG22]. **Hybrid** [LSSM19]. **Hypertext** [Kar09]. **Hypertextbook** [RV09]. **Hypothesis** [GBB+17]. **Hypothesis-Driven** [GBB+17].

i*CATch [NCLN13]. **ICT** [TSK12]. **IDE** [HOC17, OHR22]. **IDE-Based** [HOC17]. **Ideas** [SNOT21]. **Ideation** [LLF22, TBP21]. **Identification** [RJJ10]. **Identify** [LRJ14]. **Identifying** [AANK14, GVA22, LK19, WBK+22]. **Identity** [DMBP22, GbGG+23, JMN+22,

LRH+22, MHP20, RTE21]. **IEEE** [DTT16]. **Impact** [AZK+20, BCZ19, BJCS21, CDCLK17, KG22, KA16, LK19, LY21, MJB+23, MDS16, MSV+23, PS21, PLB+12]. **Impacts** [MR22]. **Impairments** [LR11, vdMHVH23]. **Implement** [HAG15b]. **Implementation** [LMGVS+16, BC13]. **Implementing** [AGEL13, MMFR20]. **Implications** [Bur11, UR17, VSK22, HM22]. **Implicit** [FPSS23]. **Importance** [ECF18]. **Improve** [LFU23]. **Improved** [OHR22, TWH18]. **Improving** [IT17]. **In-Classroom** [MRG17]. **In-Code** [VMFG17]. **Incarceration** [SAyC+21]. **Including** [PLB+12]. **Inclusion** [IKWR22, LLF22]. **Inclusive** [GML+23]. **Income** [MSV+23]. **Incorporating** [SDBJ19]. **Increase** [CMSP+19]. **Increases** [RKM20]. **Incremental** [RKM20]. **Incubators** [LC21]. **Indian** [RVAN15]. **Individual** [HCAT23]. **Industry** [Akd23, Ip12, MAK12, MSP21]. **Ineffective** [RJJ10]. **Inequities** [Ros23]. **Influence** [DJGIO20]. **Influences** [McG12b]. **Informal** [CMSP+19, GEME14, LC21, SAyC+21]. **Informatics** [BLM+14, KS14]. **Information** [BF23, CHH+11, KKNL21, KPM18, MHP20, MAK12, RCS11, YBV23]. **Informatively** [WBK+22]. **Informed** [CMSP+19]. **ing** [DMBP22]. **Inheritance** [LBK11]. **Initial** [FU10b]. **Initiatives** [PS21]. **Injections** [TK16]. **Insights** [SPC19, TAL17]. **INSPIRED** [DLM11]. **Institutional** [BMB+18, LD19]. **Institutions** [CJS+17, GHT+11]. **Instruction** [LIG22, MJB+23, MW18, Shi16, LGP13]. **Instructional** [IKWR22, BC13]. **Instructor** [AWW15, SPC19]. **Instrument** [REB23]. **Instruments** [MSK+23]. **Insufficient** [KV15]. **Integrate** [KCB+23]. **Integrated** [RG19]. **Integrating** [CDK+14, HAA13, SSF+19, TK16]. **Integration** [BSY+10, KPM18]. **Intelligence** [AMD22, FPSS23, LGGS22]. **Intent** [DBG+23]. **Intention** [ZD15]. **Intentions** [DBR+20, SNG+22, TABA12]. **Interaction** [CHU+09, KG22, OHR22]. **Interactions** [MC19]. **Interactive** [BSY+10, HEE+19, JK20, TSK12]. **Intercultural** [AM21]. **Interest** [BJCS21, CMSP+19, DBR+20, MW22, OPC17, Zin15]. **Interface** [CG19]. **Internship** [KG22]. **Internships** [KG22, MSP21]. **Intersection** [RHSS20]. **Intersectionality** [LZRO21]. **Intersections** [Vog21]. **Intervening** [EK17]. **Intervention** [GEME14, RKM20]. **Interventions** [LK19, LY21, OHR22]. **Interviews** [AJNN20, JNA18, LSHY22]. **Intro** [MMFR20]. **Introduce** [EHPR+23]. **Introducing** [CG19, KLS+14, MFR13, TM09]. **Introduction** [BB10, BAR14, BAGM13, GM14, Gri13, Hub12, LRS21, LV11a, MC15, RB21, RSL22, SF19]. **Introductory** [BBG12, BNP11, CKSS21, GGH+10, KLM15, KA16, LY21, NAG+23, QL17, RB22, SKM13, TK16, WX18, Sor13]. **Inventories** [GGH+10]. **Inventory** [PHP+22]. **Investigate** [BKZL23]. **Investigating** [MS19, TSAA+23, ZD15]. **Investigation** [HSI+19, MFCLG19, SS13, Xin15]. **Investigations** [LGGS22]. **Involvement** [BBF+21]. **Involving** [SBH+18]. **Israel** [GES14]. **Issue** [CB19, FU10b, KG18, LV11a, LV11b, MT23, MC15, RB21, RSL22, BAGM13, Gri13]. **Issues** [CAL15, KKNL21, KDM+23]. **Italian** [BLM+14]. **Iteratively** [EK17].

Java [BNP11, BA17, BWTS+23]. **Job** [ECF18]. **Justice** [AM21, ETN+21, LRS21, RSL22]. **Justice-Centered** [LRS21, RSL22].

K-12 [BBSPK22, GYSH19]. **Keep** [PD22].

Keeping [Hun16]. **Kenya** [TSAA+23]. **Kingdom** [McG12a]. **kit** [NCLN13]. **Know** [SDBJ19]. **Know-how** [SDBJ19]. **Knowledge** [AJNN20, DTT16, DM23, ECF18, GGT20, JNA18, Sho23, TCK21, YB19]. **Korea** [CAL15].

Ladders [LD19]. **Landscape** [PE23]. **Language** [BWTS+23, KMW22, MRR+10, SPR12, SS13, Vog21, VCMV23]. **Languages** [KA16]. **Large** [BVNN22, BTF+19, BA17, SH18b]. **Large-Scale** [BA17]. **Latina** [ETN+21]. **Latino** [ZJWF11]. **Launching** [SF19]. **Leadership** [PS21]. **Learn** [GVA22, JNA18, LC21, MBE+16, PHRC21, RT15, TB16, ZD15, HS13]. **Learn-to-code** [LC21]. **Learned** [SWL+22]. **Learner** [Kie09]. **Learning** [AZK+20, AANK14, ALP12, BBG12, BS10, Bol22, BSY+10, CDK+14, CDB+22, CHP+18, DMBP22, DTT16, DJHGI19, Fie19, FU10b, FPSS23, GYSH19, GBB+17, GK17, HEE+19, HHM19, HOC17, IDC+19, Kie09, KG18, KA16, LLKH18, LMGVS+16, LZT+19, LBK11, LIG22, MSK+23, MRG17, MBE+16, MAHC+22, McG12b, MAK12, MS11, MS19, MBSBA09, O'G12, PCH09, PHRC21, RT15, RG19, RPT+22, RvJP20, RMM21, SSF+19, SSSC18, SF19, SPC19, SS23, TMSA22, TAL17, TB16, TPQE18, VI13, VFFT16, WDC15, YBV23, BC13]. **lecture** [Gri13]. **Led** [RLN+22, MAHC+22]. **Left** [PLB+12]. **LEGO** [SGHZS19]. **Lens** [Arm11]. **Lessons** [EHPR+23, OPC17, RSPB17]. **Let** [Ros23]. **Level** [TPQE18]. **Levels** [Lar16]. **Liberal** [BBD+10, BB10, BCD10, WK10]. **Libraries** [RLN+22]. **Life** [BBG12]. **Limited** [Rit09, Ros23]. **Limits** [LFU23]. **Lines** [ALHR17]. **Link** [MBR23]. **Linking** [OPC17]. **Literacy** [KKNL21, MW18]. **Literal** [MS19]. **Literature** [GbGG+23, HCSAz22, KJH19, LSTA22, PO20, QL17, Sha22]. **Load** [DZS22]. **Local** [BTF+19]. **Logic** [HLKZ12]. **Long** [LK19]. **Long-Term** [LK19]. **Longitudinal** [BCC+19, MAHC+22, OPC17, Pet19]. **Look** [MK19, OPC17, RS14, TM15]. **Looking** [Arm11, TM15]. **Low** [LZT+19]. **Low-performing** [LZT+19]. **Lower** [IIRY17, MSV+23].

Machine [BLNC09, Fie19, LMGVS+16, LZT+19, SSF+19, SF19, SPC19]. **Machines** [FU10a, MBR23, Sor13]. **Major** [LRJ14, MDS16, SNG+22, ZJWF11]. **Majority** [RBSS11]. **Majors** [AZK+20, RB22, SPC19, WDK20]. **Make** [HM22, MS11]. **Making** [CMSP20, RG19]. **Maladaptive** [FPSS23]. **man** [RMM21]. **Manager** [VGM+23]. **Managing** [BCC+19]. **Many** [HAG15b, ZPB13]. **many-core** [ZPB13]. **Mapping** [BSA+23, LMH21, TS20]. **MapReduce** [RRKP13]. **Materials** [vdMHVH23]. **Mathematical** [DHH+15]. **Matters** [TM10]. **Measurement** [DSUP20, KKNL21, WDCT20, RRKP13]. **Measures** [CHA17]. **Measuring** [GBB+17, Lar16, LBT20, WDC15]. **Medium** [She13]. **Medium-sized** [She13]. **Memoriam** [HAG15a]. **Mentoring** [MSH10]. **Merging** [Kar09]. **Meta** [DCW19, UR17]. **Meta-Analysis** [UR17]. **Meta-Synthesis** [DCW19]. **Metacognition** [LMB+22]. **Method** [AHL17, VI13, VFFT16]. **Methodology** [MSH10, SH18a]. **Methods** [FEC17, LLKH18, PO20, BC13]. **Middle** [DBR+20, FEC17, KO22b, MR22, OPC17, TABA12, WSP+11]. **Middle-School** [TABA12]. **Milestones** [SNOT21]. **Mindset** [RKM20]. **Mindsets** [FPSS22]. **Minecraft** [KO22b]. **Mirror** [LGGS22]. **Misconceptions** [QL17]. **Missing** [MBR23]. **Mistakes** [BA17]. **Mittermeir**

[HAG15a]. **MLeXAI** [RMNC10]. **Model** [BF23, BBF+21, BCD10, EHBA+23, HOC17, LMGVS+16, RVAN15, RMNC10, Shi16, SSB+23, WDCT20, CHM13]. **model-driven** [CHM13]. **Modeling** [Bol22, LRJ14, Mit14, SSB+23]. **Models** [BF23, Blu22, CHA17, MSK+23]. **Moderator** [RPT+22]. **MOOC** [CHP+18, KV15]. **Most** [EK17]. **Motivate** [BHHMG21]. **Motivated** [ASG19]. **Motivation** [MBE+16, McG12b, NGK11]. **Motivations** [CGZ+20]. **Move** [RS14]. **Multi** [BMB+18]. **Multi-Institutional** [BMB+18]. **Multilingual** [JMN+22, Vog21]. **Multimodal** [RG19]. **Multiple** [ASG19, CHU+09]. **Multiple-Choice** [ASG19]. **multipurpose** [NCLN13]. **Musicians** [Fie19]. **Myself** [MRG17].

National [KWB20, TM14]. **Need** [Ber23]. **Needed** [DM23]. **Needs** [Ip12]. **Network** [MW18]. **Networks** [PO20]. **Next** [KMW22, Ko22a]. **Nexus** [MAK12]. **Nigeria** [TSAA+23]. **No** [PLB+12]. **Non** [DJHGI19, GVA22, Har21, LBT20, SPC19, RB22]. **Non-Compulsory** [DJHGI19]. **Non-CS** [RB22]. **Non-Formal** [LBT20]. **Non-Majors** [SPC19]. **Non-Technical** [GVA22]. **Non-traditional** [Har21]. **nontraditional** [RC13]. **Normative** [Blu22]. **Norms** [HCSAz22]. **North** [KMB+15]. **North-Rhine** [KMB+15]. **Notional** [MBR23, Sor13]. **Novice** [ABCD20, BA17, BWTS+23, CG19, KM16, MK19, MS19, WSLR23, Xin15]. **Novices** [RT15]. **NZ** [BAR14].

Object [AANK14, BS10, KKLL16, Shi16, Xin15]. **Object-Oriented** [AANK14, BS10, KKLL16, Shi16, Xin15]. **Objectives** [PM09]. **Objects** [Xin15]. **Offering** [Par23]. **One** [KMW22]. **Online** [BBG12, DJHGI19, FKG17, HM21, VMAG22, VFFT16]. **Open** [HM19]. **operating** [ZPB13]. **Opportunities** [CHH+11, PS21]. **Optimization** [SSD09]. **Orientation** [RCS11]. **Oriented** [AAGH14, AANK14, BS10, KLS+14, KKLL16, KDXB18, RMNC10, Shi16, Xin15, d'A10, AGEL13]. **Other** [Fie19, QL17]. **Outcome** [LLKH18]. **Outcomes** [AZK+20, OHR22, WX18]. **Outreach** [LK19, LBT20]. **Own** [MBE+16].

Pair [BJCS21, BWE11, UR17]. **Pair-Programming** [UR17]. **Paradigms** [DSU20]. **Parallel** [DSUP20, BAGM13]. **Parental** [BBF+21, CMSP+19]. **Part** [LV11a, LV11b, LRS21, RSL22]. **Partially** [ORKH09]. **Participating** [FKG17]. **Participation** [CHP+18, CHH+11, DBBR11, ETN+21, FKG17, KWB20, LV11a, LV11b, LZRO21, MPTV16, PG23, Pet19, Ros23]. **Participatory** [RLN+22]. **Partnership** [EHPR+23]. **Pass** [SSD09]. **Path** [LSHY22]. **Pathway** [LD19]. **Pathways** [LK19]. **PatternCoder** [PCH09]. **Patterns** [Bol22, PCH09]. **Pedagogical** [EHBA+23, TSK12, VSK22, YB19, HAA13]. **Pedagogy** [BSS20, Ryo19, Zin15]. **Peer** [HCAT23, ILRD20, MJB+23, MAHC+22, TPQE18, LGP13]. **Peer-led** [MAHC+22]. **Peers** [BBSPK22]. **Penalties** [LFU23]. **Pensarse** [Vog21]. **People** [SNOT21]. **Perceived** [ZD15]. **Perception** [AAGH14, vdMHVH23]. **Perceptions** [AvdM21, Bar09, BJCS21, CMSP+19, ECF18, MDS16, ZCJR20]. **Perceptual** [CJS+17]. **Perfect** [MS11]. **Performance** [DSUP20, DJHGI19, KWB20, LY21, MTGM21, RKM20, Wag16, WZL+22, YB19, AGEL13]. **Performative** [DMBP22]. **performing** [LZT+19]. **Persistence** [BSA+23, CHP+18, WDK20]. **Personal** [McG12b]. **Personalization** [BSY+10]. **Perspective**

[AWW15, BMB+18, LIG22, TM14, VSK22]. **Perspectives** [BDDGT14, HAGM14, IKWR22, KLS+14, MSV+23, MFA23, RB22, YZC19, TP23]. **Phase** [Shi16]. **Philosophical** [WK10]. **Physical** [RG19, NCLN13]. **Picture** [KWB20]. **Pilot** [EHPR+23]. **Plagiarism** [Alb20, CJS+17, KSCP22, MM12]. **Planning** [McG12a]. **Platforms** [MCK17]. **Play** [HHM19]. **Playing** [RPT+22]. **POGIL** [HS13]. **Point** [MS19, TWH18]. **Points** [GHT+11, TM11b]. **Policy** [GEME14]. **Polymorphism** [LBK11]. **Populations** [MFM+16]. **Positive** [Hun16, Hun17]. **Potential** [DBG+23, GK17]. **Power** [RTE21, Vog21]. **Powerful** [RvJP20]. **Practical** [O'G12]. **Practice** [CB19, EHPR+23, MR22, MS11, PE23, UR17]. **Practices** [ALHR17, KLS+14, KFME11]. **Practitioner** [MSV+23]. **Practitioners** [Fie19]. **Pre** [EKSW11, LR11, MDS16, RP19]. **Pre-College** [EKSW11, LR11, MDS16, RP19]. **Predict** [CHP+18, LZT+19, LRH+22]. **Predicting** [WDK20]. **Prediction** [LLKH18]. **Predictive** [CHA17]. **Predictors** [BKZL23, CKSS21]. **Preface** [FU10b]. **Preparation** [Arm11]. **Prescriptive** [Blu22]. **Present** [LSHY22]. **Presuppositions** [Ten14]. **Primary** [EHBA+23, HAGM14, IIRY17]. **Principles** [DHH+15, MJB+23, MMFR20, ORS16, SNG+22]. **Prior** [Sho23]. **Privacy** [TBP21]. **Privilege** [RTE21]. **Problem** [DTT16, Kie09, O'G12]. **Problem-Based** [DTT16, O'G12]. **Problem-Solving** [Kie09]. **Problems** [AANK14, Kie09, PE23]. **Procedural** [SSD09]. **Process** [CK09, HOC17, McG12a, Rob22]. **Processes** [RJJ10]. **Processors** [SH10]. **Procrastination** [PD22]. **Product** [ALHR17]. **Productivity** [DSU20]. **Professional** [All23, ET12, ECF18, FDW19, KPM18, MJB+23, PHRC21, RSPB17, SDBJ19, SSSC18, VS22, YZC19]. **Professionals** [AJNN20, BF23, JNA18]. **Professions** [LG21]. **Profiles** [KPM18]. **Program** [DSS21, EHPR+23, HM21, KDV22, McG12b, RSPB17, RT15, RVI09, SKM13, UFVI09, HS13]. **Programadores** [Vog21]. **Programme** [LBT20]. **Programmed** [WDCT20]. **Programmer** [MK19, YZC19]. **Programmers** [ABCD20, CG19]. **Programming** [ASG19, AvdM21, Alb20, AAGH14, AANK14, AMSBA15, AL22, BJCS21, BWE11, BA17, BWTS+23, BSY+10, CHA17, CK09, DSUP20, DSU20, DCW19, FKG17, GBB+17, IT17, KKLL16, KMW22, KSCP22, KJH19, Köl10, KM16, KLM15, KA16, LLKH18, Lai22, LK19, LY21, LMB+22, LMH21, MRR+10, MMFR20, MFCLG19, MCK17, MC19, MS19, MJC23, NGK11, OHR22, PCH09, QL17, RKM20, RJJ10, RB22, RPT+22, RS14, SKM13, SS13, TAL17, UR17, VCMV23, VMAG22, WX18, WW17, WDC15, WHS+17, Xin15, YZC19, vdMHVH23, BAGM13, IT13, Sor13]. **Programs** [BBD+10, BSA+23, BS10, CMSP+19, DBG+23, McG12a, PG23, RBSS11]. **Project** [FDW19, IT17, LMGVS+16, Ric09, RMNC10, SBH+18, VGM+23, Wan11]. **Project-Based** [LMGVS+16, Ric09, RMNC10]. **Projects** [BH16, BMB+18, BBSPK22, DJGIO20, HCAT23, MSH10, Mit14, PD22, PLB+12, SH18a, SSSC18, SH18b, TBP21]. **Promising** [KFME11]. **Promote** [LR11, OHR22]. **Promoting** [KFME11, TBP21]. **Prototype** [RV09]. **Prototyping** [KDXB18]. **Psychometric** [PHP+22]. **Public** [BVNN22]. **Purpose** [TMSA22]. **Purposeful** [KV15]. **Python** [WX18].

Qualitative [AL22, KG22, RB22, YR15]. **Quality** [BNP11]. **Quantitative** [KLM15].

Query [TSV18]. **Questions** [ASG19, HAG15b, Sho23, Ten14].

R1 [BVNN22]. **Race** [VS22]. **Racism** [VS22]. **Raise** [VGM+23]. **Randomized** [DSUP20, DSU20]. **Raspado** [RMM21]. **rating** [VMAG22]. **Re** [RVSW23, RB21]. **Re-Entering** [RB21]. **Re-Validating** [RVSW23]. **react** [IT13]. **Real** [AMSBA15, BHHMG21, LMGVS+16, TBP21]. **Real-World** [TBP21, BHHMG21]. **Reasoning** [DHH+15]. **Recognised** [DM23]. **Recommendation** [VMAG22]. **Reconfigurable** [SH10]. **Recruiting** [CMSP20]. **Recursion** [HEE+19]. **RecurTutor** [HEE+19]. **Redesign** [TSK12]. **Redesigning** [KKLL16]. **Reference** [MS19, MM12]. **Reference-Point** [MS19]. **Reflect** [PG23]. **Reflections** [ET12, Mal23]. **Reform** [GM11]. **Regarding** [TABA12]. **Regression** [LFU23]. **Regular** [GML+23]. **Regulation** [FPSS23, LMB+22]. **Rehabilitation** [NGK11]. **Related** [WDK20]. **Relation** [Ten23]. **Relationship** [FPSS23]. **Relationships** [RHSS20, SS23]. **Relevant** [KS14]. **Remotely** [MC19]. **Replications** [HSI+19]. **Reporting** [BVNN22, HCSAz22]. **Reports** [KG22]. **required** [IT13]. **Research** [BVNN22, Bar09, DCW19, DZS22, EHPR+23, GM14, GbGG+23, HSI+19, HB15, HCSAz22, HOC17, IT17, JK20, KCB+23, KFME11, LMGVS+16, MT23, MAK12, PM09, SSSC18, SF19, SS23, TS20, TP23, TM11b, Ten14, TM22]. **Research-Practice** [EHPR+23]. **Researcher** [Ten23]. **Researcher-Theory** [Ten23]. **Researchers** [MW22]. **Resources** [Rit09]. **Response** [LLF22]. **Responsible** [MAHC+22, RMM21]. **Responsive** [RG19]. **Restart** [BSCH14]. **Results** [AJNN20, JNA18]. **Resurgence** [BSCH14]. **Retaining** [HM21]. **Retention** [DBG+23]. **Reusing** [ABCD20]. **Review** [Alb20, DZS22, GbGG+23, HCSAz22, HOC17, ILRD20, KJH19, LSTA22, LMH21, MJC23, NJK19, PLF22, PO20, QL17, Sha22, SKM13, TPQE18, YBV23]. **reviews** [HAA13]. **Rhine** [KMB+15]. **Rigorous** [HAG15b]. **Robot** [MC19]. **Robotics** [LR11, MCK17, WHS+17]. **Robots** [McG12b]. **Robust** [CHU+09, LZT+19, TCK21]. **Roland** [HAG15a]. **Role** [OWK21, PGJS17, RBSS11, SNG+22, TP23, IT13]. **Rubric** [WCPF20]. **Rules** [DSS21]. **Rural** [TMSA22]. **Russia** [KS14].

Sampler [JK20]. **Scaffolding** [RT15]. **Scalable** [RWK+15, SH18a]. **Scale** [BBF+21, BA17, RVSW23]. **Scenario** [AAGH14]. **Scenario-Based** [AAGH14]. **Scholarship** [TM10]. **School** [Ber23, BSS20, CKSS21, DLM11, DBR+20, EHPR+23, EHBA+23, GM11, IIRY17, JNA18, KLS+14, KS14, KO22b, MFM+16, MR22, MSH10, OPC17, RVSW23, RS14, TABA12, WW17, WDK20, WSP+11, ZNF+20, ZCJR20, ZJWF11]. **Schools** [BDDGT14, BAR14, BLM+14, BSCH14, FEC17, Hub12, HAGM14, HAG15b, KV15, MSV+23, Par23, RVAN15, RWK+15, TM14, TAL17]. **Science** [AZK+20, All23, Arm11, BVNN22, BBD+10, BB10, BDDGT14, BAR14, BSA+23, BHHMG21, BBG12, Ber23, Blu22, BJCS21, BWE11, BBF+21, BSCH14, BCD10, BSS20, CKSS21, CMSP+19, CMSP20, CHP+18, DJGIO20, DBR+20, EBC+21, EHPR+23, EHBA+23, FPSS22, GES14, GM14, GM11, GMM17, HM22, HHM19, Hub12, HAGM14, HAG15b, IIRY17, IKWR22, JMN+22, JK20, KWB20, KS14, KCB+23, KFME11, KMB+15, LK19, LLF22, LZRO21, LSHY22, LD19, MFM+16, MHP20, MRG17, MMFR20, MW18, MR22, MSV+23, NAG+23, PLF22, PGJS17, Par23, Pet19, PS21, RVAN15, RSPB17, RWK+15, REB23, RHSS20, RV09, Ryo19, SNG+22,

SA20, TK16, TB16, VMFG17, VFFT16, VSK22, Wag16, WK10, WW17, WDK20, YB19, YBV23, ZNF+20, ZCJR20, ZJWF11, Zin15, AGEL13, Gri13, LGP13]. **Science-** [WDK20]. **Sciences** [RCS11]. **Scientometric** [SNOT21]. **Scope** [GGH+10]. **Scratch** [AMSBA15, FKG17, MRR+10, UCK+10]. **Script** [Mod21]. **Script-based** [Mod21]. **Seamless** [Kar09]. **Searching** [IDC+19]. **Second** [KG18, MT23]. **Secondary** [Arm11, BDDGT14, BLM+14, Ber23, EHPR+23, Hub12, HAGM14, IIRY17, Kie09, MCK17, RVSW23, RvJP20, YMZ+14]. **Section** [LRS21, SF19]. **Sector** [All23]. **Secure** [TK16]. **Security** [BF23, LSSM19, TK16, YVQ+10, RC13]. **Seeing** [MRG17]. **Select** [ZJWF11]. **Self** [BVNN22, CMSP+19, FPSS23, Lar16, LY21, LMB+22, MBE+16, RCS11, VMFG17, ZNF+20, IT13]. **Self-assessed** [Lar16]. **Self-Directed** [MBE+16]. **self-direction** [IT13]. **Self-Efficacy** [RCS11, CMSP+19, LY21, ZNF+20]. **Self-evaluation** [LY21]. **Self-Explain** [VMFG17]. **Self-Regulation** [FPSS23, LMB+22]. **Self-study** [BVNN22]. **Serious** [VGRM19, VGM+23]. **Service** [YBV23]. **Serving** [GHT+11, MSV+23]. **Setbacks** [LD19]. **Setting** [FDW19, GGH+10, VS22]. **Setup** [AvdM21]. **Shifting** [FPSS22]. **Shifts** [LZRO21]. **Short** [LK19, LBT20]. **Short-Term** [LK19, LBT20]. **Should** [JNA18, RP19]. **Similarity** [NJK19]. **Simulation** [RWK+15]. **Simulations** [EKSW11]. **Singleton** [She13]. **Situation** [RVAN15]. **Situations** [HM22]. **sized** [She13]. **Sketch** [BL14]. **Sketch-Based** [BL14]. **Skill** [GVA22, Lar16]. **Skills** [Akd23, AJNN20, ECF18, JNA18, MGM+23, YR15]. **Small** [BTF+19, RvJP20, She13]. **Smarter** [GML+23]. **Smartphones** [RT15]. **Snapshot** [ALHR17]. **Social** [CHA17, KPM18, LRJ14, OHR22, RHSS20, RCS11, TC19]. **Socially** [RMM21]. **Society** [RMM21]. **Sociocultural** [VSK22]. **Software** [ALHR17, Akd23, BTF+19, BCZ19, BCC+19, CDK+14, CDCLK17, CDB+22, CB19, DTT16, DHH+15, FEC17, GGT20, GVA22, HM19, HCAT23, Joh19, KDXB18, LRVW14, MPTV16, MSH10, Mit14, MGM+23, MBSBA09, VGRM19, VGM+23, Wan11]. **Solution** [MM12]. **Solving** [Kie09]. **Some** [HAG15b]. **Someone** [MRG17]. **Sophistication** [WDCT20]. **Source** [ABCD20, CJS+17, HM19, NJK19]. **Source-Code** [CJS+17, NJK19]. **South** [CJS+17]. **Spanish** [VCMV23]. **Spanish-language** [VCMV23]. **Speak** [RTE21]. **Special** [CB19, FU10b, KDM+23, KG18, LRS21, LV11a, LV11b, MT23, MC15, RB21, RSL22, SF19, BAGM13, Gri13]. **Specialized** [AJNN20]. **specific** [MSK+23]. **SQL** [BSY+10, MFA23, MTGM21, TSV18, TS20]. **Stakeholders** [SBH+18]. **STARS** [DBBR11]. **State** [GND19, GEME14, PLF22, RB21, SCA+10]. **State-of-the-Art** [PLF22]. **States** [GES14, LSHY22, McG12a]. **STEAM** [MFM+16]. **STEAM-Based** [MFM+16]. **STEM** [HM21]. **Steps** [Ko22a]. **Stereotypes** [DBR+20]. **Stitch** [JK20]. **Story** [ZJWF11]. **Strategies** [CDB+22, DBBR11, Kie09]. **Strategy** [RWK+15, WDC15]. **STREAM** [CK09]. **Structural** [LRJ14]. **Structure** [CHU+09, LMGVS+16]. **Structures** [BL14, Par23, WZL+22]. **Struggling** [PD22]. **Student** [AvdM21, Bar09, BJCS21, BBSPK22, BSS20, CHA17, DSUP20, DJHGI19, FPSS22, FDW19, GMM17, HLKZ12, JMN+22, KA16, KO22b, LFU23, LLF22, MPTV16, McG12b, MDS16, MFA23, MTGM21, NAG+23, PGJS17, PD22, Pet19, PS21, PLB+12, QL17,

RVSW23, RP19, RvJP20, SH18a, SNG+22, TABA12, VTB+20, VFFT16, WX18, WZL+22, YR15, ZD15]. **Student-Centered** [NAG+23]. **Student-Directedness** [BBSPK22]. **Students** [ASG19, AL22, BSA+23, BHHMG21, CJS+17, GML+23, GVA22, HM22, HM21, IIRY17, IDC+19, JNA18, KG22, KSCP22, KPM18, LZT+19, LR11, MBE+16, MSV+23, MSP21, ORKH09, ORS16, Pet19, RJJ10, SDBJ19, Sho23, SA20, TB16, VCMV23, Vog21, ZJWF11, HS13, IT13, YZC19]. **Studies** [BBD+10, LSSM19]. **Studio** [BTF+19, RT15]. **Studio-Based** [RT15]. **Study** [AvdM21, AL22, BAR14, BSA+23, BCC+19, DMBP22, GND19, GM11, HM22, KCB+23, KMB+15, LSTA22, MAHC+22, MGM+23, MTGM21, Par23, Pet19, RB22, Rit09, RvJP20, SNOT21, Sho23, TS20, VS22, WSLR23, YR15, Zin15, BVNN22]. **Styles** [TAL17]. **Subgoals** [MMFR20]. **Subject** [Hub12, KS14]. **Subjects** [GGH+10]. **Submission** [LFU23]. **Success** [BSS20, CKSS21, RPT+22, ZJWF11]. **Successes** [GES14]. **Successful** [UFVI09]. **Support** [ABCD20, BBSPK22, CMSP+19, GBB+17, PCH09, RCS11]. **Supported** [CDK+14, CDCLK17, MW18]. **Supporting** [ALP12, GHT+11]. **Supports** [Par23, Ryo19]. **Survey** [GMM17, REB23, UFVI09]. **SWEBOK** [GGT20]. **Syntax** [PDF15, SS13]. **Synthesis** [DCW19, JK20, d'A10]. **Synthesis-Oriented** [d'A10]. **system** [ZPB13]. **Systematic** [Alb20, BSA+23, GbGG+23, HSI+19, HCSAz22, KJH19, LSTA22, NJK19, TS20, YBV23]. **Systemic** [RWK+15]. **Systems** [KM16, LFU23, LC21, PS21, RG19, SKM13, TSK12, UFVI09].

T [REB23]. **T-ABC** [REB23]. **Table** [AHL17]. **Tabs** [PD22]. **Tackle** [PD22]. **TACS** [EHBA+23]. **Taking** [BTF+19, CKSS21]. **Tale** [GES14]. **Talking** [HAA13]. **Task** [MS11]. **Tasks** [ABCD20, AL22]. **Taught** [OPC17]. **Taxonomy** [DTT16, MBSBA09]. **Teacher** [Arm11, BKZL23, EHBA+23, GYSH19, KCB+23, MJB+23, MW18, NAG+23, RSPB17, REB23, VS22, WCPF20, YMZ+14, YB19, ZNF+20, ZCJR20]. **Teachers** [All23, BBSPK22, IKWR22, MR22, NCW22, SSSC18, vdMHVH23]. **Teaching** [ALHR17, AMD22, BC12, Bol22, BLNC09, DHH+15, FEC17, HB15, HM22, IIRY17, IT13, KLM15, KDXB18, KA16, LMGVS+16, LSSM19, MRG17, MAK12, MCK17, Mod21, PO20, RC13, RMM21, SGHZS19, SA20, SPC19, YVQ+10, ZNF+20, AGEL13, CHM13]. **teaching-oriented** [AGEL13]. **Team** [BH16, HCAT23, Lar16]. **Teams** [MPTV16, ORKH09, SH18a]. **Teamwork** [VFFT16]. **TEC** [WCPF20]. **Technical** [GVA22]. **Technique** [DSUP20, LZT+19]. **techniques** [RC13]. **Technology** [KKNL21, KPM18, MHP20, MAK12, RB21, RvJP20, SAyC+21, Vog21, WDK20, CHH+11]. **Technology-Related** [WDK20]. **Teen** [RLN+22]. **Teen-Led** [RLN+22]. **Tensions** [PS21]. **teNtative** [MM12]. **Term** [LK19, LBT20]. **Terms** [VTB+20]. **Test** [BLNC09, Sho23, VCMV23]. **Testing** [CDK+14, CDCLK17, CDB+22]. **Text** [WW17]. **Text-Based** [WW17]. **Textbooks** [BNP11]. **Textiles** [JK20, KLS+14]. **Theater** [KDXB18]. **Theater-Teaching** [KDXB18]. **Their** [DJGIO20, KDV22, MBE+16, PG23]. **Them** [ASG19, IT13]. **Theoretical** [Ten14]. **Theories** [LMB+22, MSK+23, Rob22, SS23, TP23]. **Theory** [DZS22, HM22, KDM+23, LRJ14, MT23, Mal23, MW22, RP19, TP23, TM22, Ten23, TCK21]. **Think** [WSLR23]. **Think-Aloud** [WSLR23]. **Thinking** [FU10a, FEC17, GBB+17, KCB+23, KKNL21, KO22b, Lai22, LIG22, MBR23, PE23, RG19, SNOT21, TPQE18, WHS+17,

WSP+11, YMZ+14, YR15]. **Three** [Mit14, MGM+23]. **Three-Tier** [Mit14]. **Three-year** [MGM+23]. **Threshold** [AWW15]. **Thrust** [DSU20]. **Tier** [Mit14]. **Ties** [MW18]. **TOCE** [Hun16, Hun17, Ko22a, TM15]. **Together** [OPC17]. **Tool** [BL14, DJHGI19, PCH09, SPR12, TSK12]. **Toolkit** [MW22]. **Tools** [BSY+10, CDCLK17, NJK19, TM11a, YVQ+10]. **Topic** [MW18]. **Topics** [EK17]. **Towers** [SGHZS19]. **Towson** [TK16]. **Tracing** [PG23]. **Tracking** [KDV22]. **traditional** [Har21]. **Training** [MGM+23, ORKH09]. **Trajectory** [Hun16, Hun17, LIG22]. **Transactions** [CB19, TM09]. **Transfer** [KMW22, LLKH18, LD19]. **Transfer-Learning** [LLKH18]. **Transformative** [ETN+21, YZC19]. **Transition** [GHT+11, TM15]. **Transitioning** [SAyC+21]. **Transitions** [Shi16]. **Translating** [ORS16]. **Trial** [DSUP20, DSU20]. **Troublesome** [YZC19]. **Tutorial** [HEE+19]. **Two** [GES14]. **Types** [DM23].

UDL [IKWR22]. **Uganda** [TSAA+23]. **UK** [BSCH14, CJS+17, Ip12]. **UML** [Mit14]. **Uncover** [LLF22]. **Uncovering** [AWW15]. **Undergraduate** [Bar09, BSA+23, CDCLK17, ECF18, KFME11, MFR13, McG12a, MDS16, She13, TWH18]. **Undergraduates** [CGZ+20, RCS11]. **Underrepresented** [MFM+16]. **Understanding** [CGZ+20, EHBA+23, FKG17, GGT20, Lar16, LZRO21, MHP20, MJB+23, RG19, RP19, Shi16, SPR12, VTB+20]. **Unit** [MMFR20]. **United** [GES14, LSHY22, McG12a]. **Universal** [Bur11]. **University** [VCMV23, BVNN22]. **Unlocking** [GK17]. **Unplugged** [TABA12]. **up-in-the-cloud** [ZPB13]. **upper** [LGP13]. **upper-division** [LGP13]. **Usability** [AAGH14, vdMHVH23]. **Usability-Oriented** [AAGH14]. **Use** [ASG19, BWTS+23, LMB+22, LR11, MSK+23, Sho23, SS23, VMAG22]. **Used** [NJK19]. **User** [PLB+12]. **Using** [CMSP+19, CDCLK17, DTT16, FEC17, GBB+17, HS13, JK20, Kie09, LMGVS+16, LLF22, LSSM19, MT23, Mit14, RRKP13, TM22, Wan11, DSUP20, RVAN15, RC13]. **Utilize** [BBSPK22]. **Utilizing** [LRJ14]. **UX** [KG22].

Validating [RVSW23]. **Validation** [REB23, VCMV23]. **Value** [EBC+21, MRG17, MSP21]. **Valued** [NCW22]. **Values** [FDW19, PM09]. **Variation** [RVSW23, TB16]. **Veces** [Vog21]. **Version** [VCMV23]. **VHDL** [d'A10]. **via** [KSCP22]. **Viable** [DBBR11]. **Video** [MGM+23]. **Video-based** [MGM+23]. **Views** [BKZL23, GYSH19, TABA12]. **Virtual** [WHS+17]. **Vision** [HB15]. **Visions** [HAGM14]. **Visual** [BS10, LR11, vdMHVH23]. **Visualization** [MBSBA09, RVI09, RV09, SSD09, SCA+10, SKM13, UFVI09, YVQ+10]. **Visualization-Based** [RV09]. **Visualizations** [CHU+09]. **Visualizing** [BL14]. **vs** [BA17, WX18].

wearable [NCLN13]. **Wearables** [MCK17]. **Web** [AWW15, MC15, PDF15, PHRC21, ZD15]. **Westphalia** [KMB+15]. **Where** [JK20]. **Which** [NCW22]. **White** [VS22]. **Who** [JK20]. **Wide** [PS21]. **Wild** [FKG17]. **will** [Ros23]. **Within** [TB16, CJS+17, DMBP22, SSF+19]. **without** [Sho23]. **Woman** [DMBP22, RHSS20]. **Women** [HM21, KFME11, LC21, LG21, PHRC21, PG23, RTE21, SAyC+21, WDK20]. **Work** [BF23, DMBP22, ORKH09, RP19, SGHZS19]. **Worked** [MJC23]. **Workload** [BBG12].

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