A Complete Bibliography of the *ACM Transactions on Computing Education (TOCE)*

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13 May 2024
Version 1.54

Title word cross-reference

× [GML+23].

1 [LRS21, Zin15]. **12** [BBSPK22, GES14, GYSH19, HAGM14, HAG15b, JK20, OWK21, Tag24, TM14, TSAA+23]. **16-18** [All23]. **19** [MSV+23].

2 [RSL22].

6 [IKWR22].

7th [SA20].

= [GML+23].

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[BSA+23, BSP24, FTD+24, FWD+24, LGGS22, MFH24, RTE21, RHSS20, TBB24, WDC+24, WF24, ETN+21]. **Blending** [CHA17, IT17]. **Block** [GBB+17, WW17]. **Block-Based** [GBB+17, WW17]. **Blocks** [Bra24, CG19]. **Bloom** [DTT16]. **BlueJ** [BS10]. **Bob** [RWS+24]. **Body** [DTT16]. **Bolstering** [BSA+23]. **Boolean** [HLKZ12]. **Boot** [LG21]. **Bot** [RWS+24]. **Botswana** [TSAA+23]. **Boy** [DBR+20]. **Brain** [CG19]. **Brain-Computer** [CG19]. **Brains** [CG19]. **Brazilian** [DBG+23]. **Bridge** [HM21]. **Bridging** [LRVW14]. **Briefs** [MR22]. **Bring** [RWK+15]. **Bringing** [HB15]. **Broadening** [CHH+11, DBBR11, LV11a, LV11b, Ros23]. **Bugged** [ABCD20]. **Building** [SGHZS19, TDMN+24].

C [WX18]. **Calculus** [CKSS21]. **California** [TMSA22]. **Camp** [BSP24]. **Camps** [LG21, OPC17]. **Can** [ASG19, IDC+19, LGP13, SNG+22, Sho23]. **Candidate** [BKZL23]. **Capital** [FTD+24, VSK22]. **Capitalize** [IDC+19]. **Capstone** [DJGIO20, PD22, TBP21]. **Capstones** [SH18b]. **Capturing** [Lar16]. **Cards** [TBP21]. **Career** [DBR+20, LRJ14, MHP20, RHSS20, SNG+22]. **Careers** [BCZ19, OPC17, PG23, RCS11]. **Case** [BBD+10, BAR14, BCC+19, BWE11, DMBP22, GND19, GM11, KMB+15, LSSM19, Par23, SSD09, VS22]. **Cases** [SK24]. **Cash** [RMM21]. **Cash-free** [RMM21]. **Causal** [DBM24]. **Centered** [GMM17, LRS21, NAG+23, RSL22, RC13]. **CER** [DM23]. **Challenges** [ALHR17, BBG12, GES14, SGHZS19, VGRM19, VGM+23]. **Change** [AB24, FPSS22, PS21]. **Characteristics** [All23]. **Characterizing** [YB19]. **Chat** [HCAT23]. **Chatbot** [PD22]. **ChatGPT** [RWS+24, Sho23]. **Child** [HHM19]. **Children** [DCW19, WDC15, WDCT20, vdMHVH23]. **China** [CJS+17]. **Chinese** [TB16]. **Choice** [ASG19, LRJ14, MHP20, RHSS20]. **Choices** [MDS16]. **Chutes** [LD19]. **CISing** [YBV23]. **Class** [BHHMG21, PCH09, YR15]. **Classes** [Xin15]. **Classifying** [All23, SPC19]. **Classroom** [BWE11, GMM17, HB15, LSSM19, MRG17, SSSC18, Gri13]. **Classroom-Based** [SSSC18]. **Classrooms** [RPT+22, WW17, ZCJR20]. **cloud** [ZPB13]. **clouds** [RRKP13]. **Co** [TDMN+24]. **Co-ML** [TDMN+24]. **Coaches** [IKWR22]. **Coaching** [MRG17]. **Code** [ABCD20, CJS+17, DJHGI19, ILRD20, NCW22, SOB24, VMFG17, HAA13, LC21, NJK19]. **Code.org** [MMFR20]. **CodePlus** [LBT20]. **Coding** [BKZL23, KO22b, LG21, TK16, TMSA22]. **Cognition** [Rob22]. **Cognitive** [DZS22, LRJ14, RJJ10, TAL17]. **Cohort** [BTF+19]. **Collaboration** [Bol22]. **Collaborative** [CDK+14, MBSBA09, TDMN+24, VFFT16]. **College** [BJCS21, BSS20, CKSS21, EKSW11, GMM17, LR11, LD19, MDS16, RP19, WDK20]. **Colleges** [She13]. **Collusion** [KSCP22]. **Color** [DMBP22]. **Combining** [CDB+22, HCAT23]. **Comments** [VMFG17]. **Communication** [BBG12, KKNL21, MGM+23]. **Communications** [MAK12]. **Communities** [LC21]. **Community** [FKG17, KRH+24, LD19]. **Como** [Vog21]. **Comparative** [FWD+24]. **Comparing** [DSU20, ECF18, WW17]. **Comparison** [CJS+17]. **Competence** [SSB+23, TSK12]. **Competency** [BF23, Lai22]. **Competitive** [COK24]. **Compiler** [SSD09]. **Complexity** [EK17, KDV22]. **Complications** [TSV18]. **Comprehension** [KDV22]. **Compulsory** [DJHGI19, Hub12]. **Computational** [EVM24, FKG17, FEC17, GBB+17, KLS+14, KCB+23, KKNL21, KO22b, Lai22, LIG22, MBR23, PE23, RG19, SNOT21, Tag24, TM11a, VMFG17, WDC15, WDCT20,

WHS+17, WSP+11, YMZ+14, YR15]. **Computer** [AZK+20, All23, Arm11, BVNN22, BBD+10, BB10, BDDGT14, BAR14, BSA+23, BHHMG21, BBG12, Ber23, Blu22, BJCS21, BSP24, BWE11, BBF+21, BSCH14, BXS+24, BCD10, BSS20, CKSS21, CMSP+19, CMSP20, CG19, CHP+18, DCW19, DJGIO20, DBR+20, EBC+21, EHPR+23, EHBA+23, FPSS22, GES14, GM14, GM11, GMM17, GbGG+23, HB15, HM22, HHM19, Hub12, HAGM14, HAG15b, IIRY17, IKWR22, JMN+22, JK20, KWB20, KS14, KFME11, KMB+15, Lai22, LK19, LMGVS+16, LLF22, LZRO21, LSHY22, LD19, MFM+16, MHP20, MPDS24, MRG17, MMFR20, MW18, MR22, MSV+23, MFH24, NAG+23, PLF22, PGJS17, Par23, Pet19, PS21, PO20, RVAN15, RSPB17, RJJ10, RWK+15, RWS+24, REB23, RHSS20, RV09, RCS11, Ryo19, SNG+22, She13, SPR12, SA20, TK16, TB16, UR17, VCMV23, VFFT16, VSK22, Wag16]. **Computer** [WK10, WW17, WDK20, YB19, YBV23, YVQ+10, ZNF+20, ZCJR20, ZJWF11, AGEL13, Gri13, KG22, LGP13, Zin15]. **Computer-Based** [Lai22]. **Computes** [GEME14]. **Computing** [AM21, Bar09, BH16, BMB+18, BBF+21, BXS+24, Bur11, CHA17, CAL15, CB19, CGZ+20, CGON24, DBBR11, DMBP22, DLM11, DZS22, DBG+23, EKSW11, EBC+21, ETN+21, ET12, ECF18, FTD+24, FWD+24, GND19, GHT+11, GGH+10, GYSH19, GK17, HSI+19, HCSAz22, HM22, HOC17, KLS+14, KRH+24, KG18, LRS21, LV11a, LV11b, LSTA22, LR11, LRH+22, LZR24, LG21, MFR13, MHP20, MSK+23, MT23, MBE+16, MAHC+22, MDS16, MCK17, MW22, MS11, NAG+23, O'G12, OWK21, OHR22, Pad24, PM09, PG23, PCC+24, RB21, Rob22, RLN+22, RHSS20, RP19, RvJP20, RMM21, RSL22, SH18a, SDBJ19, SYP24, SNG+22, SSSC18, SH18b, SS23, TP23, TM09, TM10, TM11a, TM11b, TM14, TC19, TM22, TBB24, TSAA+23, WCPF20, WF24, YR15, AGEL13, HAA13, NCLN13]. **Concept** [GGH+10, IIRY17, PHP+22]. **Conceptions** [RvJP20, VS22, Xin15]. **Concepts** [AWW15, KLS+14, KA16, MS11, WBK+22, YZC19]. **Conceptual** [TPQE18]. **Conceptualizing** [MT23, TM22, Ten23]. **concurrency** [CHM13]. **concurrent** [BAGM13]. **Conditions** [RPT+22]. **Consider** [NCW22]. **Considerations** [TBP21]. **Considered** [DJGIO20]. **Considering** [CGZ+20]. **Consortium** [BCD10]. **construction** [NCLN13]. **Constructionist** [MSH10]. **Content** [BSS20, EHBA+23, VMAG22, WCPF20, YB19]. **Context** [GEME14, LZRO21, ORS16, Rob22]. **Contextualization** [LBM24]. **Contingency** [AHL17]. **Continue** [Ros23]. **Continues** [Hun17]. **Continuing** [All23]. **Continuum** [CB19]. **Contributions** [DM23, HCAT23]. **Controlled** [Bol22, DSUP20, DSU20, MC19, WX18]. **Conversation** [Ros23]. **Conversion** [HM21]. **Cooperative** [BC13]. **Coordinator** [RB22]. **Copying** [DJHGI19]. **Core** [JNA18, ZPB13]. **Correctness** [DHH+15]. **Counter** [EBC+21]. **Counter-hegemonic** [EBC+21]. **Countries** [GES14, TSAA+23]. **Country** [RVSW23]. **Course** [AHL17, BHHMG21, BTF+19, BCZ19, CKSS21, CDCLK17, EK17, IT17, KKLL16, LLKH18, MTGM21, NGK11, PDF15, RB22, Rit09, She13, SH10, WX18, Wan11, d'A10]. **Courses** [ASG19, CHA17, CDK+14, Ip12, MFCLG19, Mit14, OHR22, Pad24, Ric09, RB22, SSF+19, SNG+22, SBH+18, TBP21, TK16, UR17, VMAG22, HAA13, LGP13]. **Coverage** [ECF18]. **COVID** [MSV+23]. **COVID-19** [MSV+23]. **CPD** [All23]. **Crafts** [KLS+14]. **Crafts-Oriented** [KLS+14]. **Creating** [Rit09]. **Creation** [RWK+15]. **Creative** [Fie19]. **Creativity**

[ALP12, Sha22]. **Creativity-Supporting** [ALP12]. **Critical** [GHT+11, HOC17]. **Cross** [RVSW23, TM14]. **Cross-Country** [RVSW23]. **Cross-National** [TM14]. **Crossing** [HM21]. **CS** [Blu22, FPSS22, GML+23, HM21, KV15, LBT20, MJB+23, MSP21, PLB+12, RVSW23, RVAN15, RTE21, RB22, SWL+22, TABA12, TWH18, VTB+20, VS22, WDC+24]. **CS1** [BC13, ORS16, Sha22]. **CS2** [TPQE18]. **CS4HS** [RSPB17]. **CS=Me** [WDC+24]. **CSF** [HBVTN21]. **CSLE** [ALP12]. **CSS** [PDF15]. **CSTutor** [BL14]. **CUDA** [DSU20]. **Current** [ALHR17, CAL15, RB21]. **Curricula** [AJNN20, BCD10, WCPF20]. **Curriculum** [Blu22, BMB+18, DTT16, McG12a, NAG+23, WHS+17, AGEL13]. **Cyber** [AJNN20, JNA18]. **Cyber-Defense** [JNA18]. **Cybersecurity** [BF23, JNA18, LRVW14, PHP+22]. **Cyprus** [CJS+17].

Dance [DMBP22]. **Darmstadt** [RVAN15]. **Data** [AHL17, BA17, BL14, CHU+09, GBB+17, HCAT23, WZL+22, YR15]. **Data-Driven** [GBB+17, YR15]. **Database** [MTGM21]. **Dataset** [TDMN+24]. **Debieron** [Vog21]. **Debugger** [BS10]. **Debugging** [ABCD20, DBM24, WSLR23]. **Decade** [CHH+11, JK20]. **Decisions** [HM22]. **Defense** [AJNN20, JNA18]. **Degree** [AANK14, McG12a]. **Demo** [KDXB18]. **Demo-Oriented** [KDXB18]. **Demographics** [LZRO21]. **Derived** [AHL17]. **Describing** [HLKZ12]. **Description** [LBM24]. **Descriptive** [Blu22]. **Design** [BC13, BC12, Bra24, Bur11, CMSP+19, Coo10, DCW19, EKSW11, GML+23, Ip12, Joh19, KCB+23, LSSM19, OWK21, PCH09, RWK+15, RG19, RLN+22, Shi16, TSK12, TP23, TDMN+24, Xin15]. **Design-Based** [KCB+23]. **Designers** [MW22]. **Designing** [BBSPK22, NCLN13, OHR22, Ric09]. **Desk** [Hun17]. **Detection** [MM12, NJK19]. **Developing** [MHP20, MR22, TSK12, TDMN+24, WHS+17]. **Development** [All23, AWW15, BCZ19, BCC+19, BBF+21, CG19, EVM24, HM19, HCAT23, Ip12, JMN+22, KO22b, Lar16, MSK+23, MJB+23, MW22, MC15, Mod21, PDF15, PHRC21, RSPB17, Rit09, REB23, VS22, VGRM19, VGM+23, ZD15]. **Devices** [RP19, TSK12]. **Diagnosing** [Kie09]. **Dialog** [KDM+23]. **did** [IT13]. **Didactical** [BDDGT14]. **Difference** [AM21]. **Differences** [Har21, RVSW23, SDBJ19]. **Different** [DSU20, DM23, KLM15, KA16, TAL17]. **Difficult** [EK17, YZC19]. **Difficulties** [HLKZ12, LBK11, MS19, QL17]. **Digital** [BC12, MW18, RG19]. **Dimensions** [TB16]. **Directed** [MBE+16]. **Directedness** [BBSPK22]. **direction** [IT13]. **Discipline** [MFR13, Pet19, TM10]. **Discipline-Based** [MFR13]. **Discovering** [VGRM19]. **Discrepancies** [DJGIO20]. **Discrepancy** [DBM24]. **Discrimination** [LLF22]. **Discussion** [UCK+10]. **Disrupting** [RLN+22]. **Distributed** [BTF+19, BCZ19, BCC+19, ORKH09]. **District** [PS21]. **District-Wide** [PS21]. **Diversified** [SNG+22]. **Diversity** [BVNN22, BCC+19, GML+23, GYSH19, LLF22, RBSS11]. **division** [LGP13]. **Do** [AB24, BBG12, LRH+22, MSP21, MFH24, NCW22, TAL17, CHP+18, HM22]. **Does** [DCW19]. **Doesn't** [MS11]. **Domain** [Bol22, MSK+23]. **Domain-specific** [MSK+23]. **Domains** [LRVW14]. **Don't** [GVA22]. **down** [ZPB13]. **down-to-earth** [ZPB13]. **Driven** [GBB+17, Shi16, YR15, CHM13, LMH21]. **Drop** [DBG+23]. **Drop-out** [DBG+23]. **Dual** [Rob22]. **During** [BSP24, RKM20, RJJ10, AL22]. **Dynamic** [CHU+09].

Early [CHA17, MR22, OHR22, RSPB17, HAA13]. **EarSketch** [MFM+16]. **earth** [ZPB13]. **Easing** [Bra24]. **Easy** [WBK+22]. **Ecosystem** [FTD+24]. **Editor** [Hun17]. **Editorial** [MT23, RVI09, TM11a, TM11b, TM14, TM22]. **Editors** [BB10]. **Educating** [KSCP22]. **Education** [AMD22, AM21, BDDGT14, BLM+14, Blu22, BH16, BCC+19, BBF+21, BXS+24, Bur11, CAL15, CB19, CJS+17, DZS22, EKSW11, EBC+21, ET12, FTD+24, Fie19, GES14, GND19, GVA22, GbGG+23, GK17, GEME14, HSI+19, HCSAz22, HM19, HHM19, Hub12, HAGM14, HAG15b, HOC17, ILRD20, IIRY17, IKWR22, JK20, Joh19, KMW22, Kie09, KCB+23, KMB+15, KG18, KV15, LRS21, LV11a, LV11b, LMB+22, LSTA22, LMH21, LRVW14, LSHY22, MFR13, MFM+16, MSK+23, MT23, MSV+23, MCK17, MBKS24, MW22, O'G12, OWK21, PLF22, PGJS17, PM09, PCC+24, RVAN15, RTE21, RWK+15, RLN+22, RVI09, RSL22, SYP24, SAyC+21, SH18b, SKM13, SS23, TS20, TP23, TM10, TM11a, TM11b, TM14, TC19, TM22, TWH18, TSAA+23, VMFG17, VSK22, WF24, YMZ+14, NCLN13, Sor13, TM09, CB19]. **education-friendly** [NCLN13]. **Educational** [Har21, KS14, LRH+22, MC19, UR17, ZPB13]. **Educator** [BA17]. **Effect** [Blu22, LBM24, MPDS24, 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, AB24]. **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]. **Ended** [DBM24]. **Engagement** [CDB+22, MBSBA09]. **Engaging** [KFME11]. **Engineer** [SK24]. **Engineering** [Akd23, AL22, AB24, 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, COK24, 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, Pad24]. **Ethics** [BXS+24, HM22, MAHC+22, SSF+19]. **EU** [SOB24]. **Evaluating** [VGRM19, WCPF20]. **Evaluation** [Bra24, 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, WF24]. **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]. **Expectations** [CGON24]. **Experience** [FKG17, Har21, Pet19]. **Experienced** [AL22, ET12, RB22]. **Experiences** [Bar09, BSP24, ECF18, KFME11, LRH+22, NAG+23, PG23, TBB24, WF24, YBV23]. **Experiment** [Bol22, WX18]. **Experimental** [VI13]. **Expert** [MFA23]. **Experts** [GVA22, SDBJ19]. **Explain** [VMFG17]. **Exploration** [LZRO21, MPTV16]. **Exploring** [ET12, GM11, HM19, RWS+24, VS22, Vog21, WDC+24, SNG+22]. **Expository** [WSP+11]. **Extending** [KKNL21, MBSBA09]. **Extensive** [Wan11]. **External** [SBH+18]. **Eye** [MPDS24]. **Eyes** [KDV22, MRG17].

Fabrication [RG19]. **Face** [MGM+23]. **Face-to-face** [MGM+23]. **Facilitate** [Mit14]. **Facilitating** [SSSC18]. **Factors** [COK24, DJGIO20, DBG+23, LRJ14, Tag24, WDC+24, ZD15]. **Faculty** [Bar09, GMM17, LSHY22]. **Families** [MSV+23]. **Feedback** [HBVTN21, KSCP22, KJH19, MBKS24, ORS16, SK24]. **Female** [KWB20, LBT20]. **Fiction** [GM14]. **Field** [SCA+10]. **Fight** [SYP24]. **Final** [CGZ+20]. **Final-year** [CGZ+20]. **Findings** [MR22]. **Finnish** [KV15]. **First** [AL22, AB24, BHHMG21, CK09, NGK11, VCMV23]. **First-Year** [AB24, AL22, VCMV23]. **Fit** [BBG12, MFH24]. **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** [Bra24, 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, WDC+24]. **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** [BSP24, ETN+21, FTD+24, MFH24, TBB24]. **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, MBKS24]. **Graduate** [KG22]. **Graduates** [CGON24, 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, SMGF24]. **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** [COK24, HS13]. **Help-seeking** [COK24]. **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]. **Hired** [LZR24]. **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, KRH+24, LRH+22, MHP20, RTE21, WDC+24]. **IEEE** [DTT16]. **Impact** [AZK+20, BCZ19, BJCS21, CDCLK17, KG22, KRH+24, 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]. **Important** [FTD+24]. **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]. **Influencing** [COK24]. **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]. **Intersectional** [TBB24, WF24]. **Intersectionality** [LZRO21]. **Intersections** [Vog21, WDC+24]. **Intervening** [DBM24, EK17]. **Intervention** [GEME14, RKM20]. **Interventions** [FWD+24, LK19, LY21, OHR22, Pad24]. **Interviews** [AJNN20, JNA18, LSHY22]. **Intro** [MMFR20]. **Introduce** [EHPR+23]. **Introducing** [Bra24, CG19, KLS+14, MFR13, TM09]. **Introduction** [BB10, BAR14, BAGM13, GM14, Gri13, Hub12, LRS21, LV11a, MC15, RB21, RSL22, SF19, TBB24]. **Introductory** [BBG12, BNP11, CKSS21, COK24, GGH+10, KLM15, KA16, LY21, NAG+23, QL17, RB22, SKM13, TK16, WX18, Sor13]. **Inventories** [GGH+10]. **Inventory** [PHP+22]. **Investigate** [BKZL23]. **Investigating** [MS19, SOB24, 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, TBB24, BAGM13, Gri13]. **Issues** [CAL15, KKNL21, KDM+23]. **Italian** [BLM+14]. **Iteratively** [EK17].

Java [BNP11, BA17, BWTS+23]. **Job** [ECF18, LZR24]. **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, MPDS24, 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]. **Learnable** [CGON24]. **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, SMGF24, SPC19, SS23, TMSA22, TAL17, TB16, TDMN+24, 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** [BXS+24, EVM24, GbGG+23, HCSAz22, KJH19, LSTA22, PCC+24, 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, TDMN+24]. **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]. **Mechanisms** [SOB24]. **Medium** [She13]. **Medium-sized** [She13]. **Memoriam** [HAG15a]. **Mentoring** [BSP24, MSH10]. **Mentors** [BSP24]. **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** [BSP24, LGGS22]. **Misconceptions** [QL17]. **Missing** [MBR23]. **Mistakes** [BA17]. **Mittermeir** [HAG15a]. **ML** [TDMN+24]. **MLeXAI** [RMNC10]. **Model** [BF23, BBF+21, BCD10, EHBA+23, HOC17, LMGVS+16, RVAN15, RMNC10, Shi16, SK24, SSB+23, TDMN+24, 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, WF24]. **Motivations** [CGZ+20]. **Move** [RS14]. **Movements** [MPDS24]. **Multi** [BMB+18]. **Multi-Institutional** [BMB+18]. **Multilingual** [JMN+22, Vog21]. **Multimodal** [RG19]. **Multiple** [ASG19, CHU+09]. **Multiple-Choice** [ASG19]. **multipurpose** [NCLN13]. **Musicians** [Fie19]. **Must** [SYP24]. **Myself** [MRG17].

National [KWB20, TM14]. **Navigating** [FTD+24]. **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]. **Noticing** [DBM24]. **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**

[DBM24, HM19]. **Open-Ended** [DBM24]. **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]. **Our** [SYP24]. **Outcome** [LLKH18]. **Outcomes** [AZK+20, OHR22, WX18]. **Outreach** [LK19, LBT20]. **Outsiders** [MFH24]. **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, SOB24]. **Participatory** [RLN+22]. **Partnership** [EHPR+23]. **Pass** [SSD09]. **Path** [LSHY22]. **Pathway** [LD19]. **Pathways** [DBM24, LK19, LZR24]. **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, FWD+24, 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]. **Phenomenographic** [LZR24]. **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]. **Plays** [FTD+24]. **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, KRH+24, MR22, MS11, PE23, UR17]. **Practices** [ALHR17, KLS+14, KFME11, TDMN+24]. **Practitioner** [MSV+23]. **Practitioners** [Fie19]. **Pre** [EKSW11, LR11, MDS16, RP19]. **Pre-College** [EKSW11, LR11, MDS16, RP19]. **Predict** [CHP+18, LZT+19, LRH+22, Tag24]. **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, LBM24, O'G12]. **Problem-Based** [DTT16, O'G12]. **Problem-Solving** [Kie09]. **Problems** [AANK14, AB24, Kie09, PE23]. **Procedural** [SSD09]. **Process**

[CK09, HOC17, McG12a, Rob22]. **Processes** [RJJ10]. **Processors** [SH10]. **Procrastination** [PD22]. **Product** [ALHR17]. **Productivity** [DSU20]. **Professional** [All23, CGON24, EVM24, 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, KRH+24, 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, AB24, BJCS21, Bra24, BWE11, BA17, BWTS+23, BSY+10, CHA17, CK09, COK24, DSUP20, DSU20, DCW19, FKG17, GBB+17, IT17, KKLL16, KMW22, KSCP22, KJH19, Köl10, KM16, KLM15, KA16, LLKH18, Lai22, LK19, LY21, LMB+22, LMH21, MRR+10, MPDS24, MMFR20, MFCLG19, MCK17, MC19, MBKS24, MS19, MJC23, NGK11, OHR22, PCH09, QL17, RKM20, RJJ10, RB22, RPT+22, RS14, SMGF24, 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, SYP24]. **Publications** [BXS+24]. **Purpose** [TMSA22]. **Purposeful** [KV15]. **Pyrates** [Bra24]. **Python** [Bra24, WX18].

Qualitative [AL22, KG22, RB22, SMGF24, YR15]. **Quality** [BNP11]. **Quantitative** [KLM15]. **Query** [TSV18]. **Questions** [ASG19, HAG15b, Sho23, Ten14].

R1 [BVNN22]. **Race** [VS22, WDC+24]. **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]. **Realist** [Pad24]. **Reasoning** [DBM24, 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, SMGF24]. **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** [FWD+24, HM21]. **Retention** [DBG+23]. **Reusing** [ABCD20]. **Review** [Alb20, BXS+24, DZS22, EVM24, GbGG+23, HCSAz22, HOC17, ILRD20, KJH19, LSTA22, LMH21, MBKS24, MJC23, NJK19, Pad24, PLF22, PCC+24, 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** [FTD+24, 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** [KRH+24, 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, SYP24, TM14, TAL17]. **Science** [AZK+20, All23, Arm11, BVNN22, BBD+10, BB10, BDDGT14, BAR14, BSA+23, BHHMG21, BBG12, Ber23, Blu22, BJCS21, BSP24, BWE11, BBF+21, BSCH14, BXS+24, 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, MPDS24, MRG17, MMFR20, MW18, MR22, MSV+23, MFH24, NAG+23, PLF22, PGJS17, Par23, Pet19, PS21, RVAN15, RSPB17, RWK+15, RWS+24, 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]. **seeking** [COK24]. **Select** [ZJWF11]. **Self** [BVNN22, CMSP+19, FPSS23, Lar16, LY21, LMB+22, MBE+16, RCS11, SMGF24, 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, SMGF24]. **Self-study** [BVNN22]. **Serious** [Bra24, VGRM19, VGM+23]. **Service**

[YBV23]. **Serving** [BSP24, GHT+11, MSV+23]. **Setbacks** [LD19]. **Setting** [FDW19, GGH+10, VS22]. **Setup** [AvdM21]. **Shape** [WDC+24]. **Shifting** [FPSS22]. **Shifts** [LZRO21]. **Short** [LK19, LBT20]. **Short-Term** [LK19, LBT20]. **Should** [JNA18, RP19]. **Similarity** [NJK19]. **Simulation** [RWK+15]. **Simulations** [EKSW11]. **Singleton** [She13]. **Situating** [TBB24]. **Situation** [RVAN15]. **Situations** [HM22]. **sized** [She13]. **Sketch** [BL14]. **Sketch-Based** [BL14]. **Skill** [GVA22, Lar16]. **Skills** [Akd23, AJNN20, CGON24, ECF18, JNA18, MGM+23, Tag24, YR15]. **Small** [BTF+19, RvJP20, She13]. **Smarter** [GML+23]. **Smartphones** [RT15]. **Snapshot** [ALHR17]. **Social** [CHA17, COK24, FTD+24, 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]. **Solidarity** [SYP24]. **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, TBB24, 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, SMGF24]. **Strategy** [RWK+15, WDC15]. **STREAM** [CK09]. **Structural** [LRJ14]. **Structure** [CHU+09, LMGVS+16]. **Structures** [BL14, Par23, WZL+22]. **Struggling** [PD22]. **Student** [AvdM21, AB24, Bar09, BJCS21, BBSPK22, BSS20, CHA17, DSUP20, DJHGI19, FPSS22, FDW19, GMM17, HLKZ12, JMN+22, KRH+24, KA16, KO22b, LFU23, LLF22, LZR24, MPTV16, McG12b, MDS16, MFA23, MTGM21, NAG+23, Pad24, 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, COK24, CJS+17, GML+23, GVA22, HM22, HM21, IIRY17, IDC+19, JNA18, KG22, KSCP22, KPM18, LZT+19, LR11, MPDS24, MBE+16, MSV+23, MSP21, ORKH09, ORS16, Pet19, RJJ10, SDBJ19, SK24, Sho23, SMGF24, 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, LZR24, MAHC+22, MGM+23, MTGM21, Par23, Pet19, RB22, Rit09, RvJP20, SNOT21, Sho23, SMGF24, 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]. **Sustainability** [PCC+24]. **SWEBOK** [GGT20]. **Syntax** [PDF15, SS13]. **Synthesis** [DCW19, JK20, d'A10]. **Synthesis-Oriented** [d'A10]. **system** [ZPB13]. **Systematic** [Alb20, BSA+23, BXS+24, EVM24, GbGG+23, HSI+19, HCSAz22, KJH19, LSTA22, MBKS24, NJK19, PCC+24, 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** [MPDS24, MS11]. **Tasks** [ABCD20, AL22]. **Taught** [OPC17]. **Taxonomy** [DTT16, MBSBA09]. **Teacher** [Arm11, BKZL23, EHBA+23, GYSH19, KCB+23, MJB+23, MW18, NAG+23, RSPB17, REB23, Tag24, VS22, WCPF20, YMZ+14, YB19, ZNF+20, ZCJR20]. **Teachers** [All23, BBSPK22, IKWR22, MR22, NCW22, SSSC18, vdMHVH23]. **Teaching** [ALHR17, AMD22, BC12, Bol22, BXS+24, 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, Pad24]. **Technique** [DSUP20, LZT+19]. **techniques** [RC13]. **Technology** [KKNL21, KPM18, MHP20, MAK12, RB21, RvJP20, SAyC+21, TBB24, 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, SK24, 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, SYP24]. **Them** [ASG19, IT13]. **Theoretical** [Ten14]. **Theories** [LMB+22, MSK+23, Rob22, SS23, TP23]. **Theory** [DZS22, HM22, KDM+23, LRJ14, MT23, Mal23, MW22, RP19, SMGF24, TP23, TM22, Ten23, TCK21]. **Think** [WSLR23]. **Think-Aloud** [WSLR23]. **Thinking** [EVM24, FU10a, FEC17, GBB+17, KCB+23, KKNL21, KO22b, Lai22, LIG22, MBR23, PE23, RG19, SNOT21, Tag24, 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, MBKS24, 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** [Bra24, GHT+11, TM15]. **Transitioning** [SAyC+21]. **Transitions** [Shi16]. **Translating** [ORS16]. **Trial** [DSUP20, DSU20]. **Troublesome** [YZC19]. **Tutorial** [HEE+19]. **Two** [GES14]. **Type** [MPDS24]. **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, LZR24, MFR13, McG12a, MDS16, Pad24, She13, TWH18, WF24]. **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** [COK24, RWS+24, 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, SMGF24]. **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** [BSP24, 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]. **Week** [SOB24]. **Westphalia** [KMB+15]. **Where** [JK20]. **Which** [NCW22]. **while** [AB24]. **White** [VS22]. **Who** [JK20]. **Wide** [PS21]. **Wild** [FKG17]. **will** [Ros23]. **Within** [MFH24, TB16, CJS+17, DMBP22, SSF+19]. **without** [Sho23]. **Woman** [DMBP22, RHSS20]. **Women** [BSP24, FWD+24, HM21, KFME11, LC21, LG21, PHRC21, PG23, RTE21, SAyC+21, TBB24, WDK20, WDC+24, WF24]. **Work** [BF23, DMBP22, ORKH09, RP19, SGHZS19]. **Worked** [MJC23]. **Working** [AB24]. **Workload** [BBG12]. **Workshops** [PHRC21]. **World** [TBP21, BHHMG21]. **WReSTT** [CDCLK17]. **Writing** [VMFG17, WSP+11].

Year [AB24, AL22, CGZ+20, MGM+23, VCMV23]. **Young** [BCZ19]. **You're** [LZR24]. **Youth** [CMSP+19, CMSP20, FKG17, LGGS22, PS21, RG19].

References

Alexandron:2014:SBP

[AAGH14] Giora Alexandron, Michal Armoni, Michal Gordon, and David Harel. Scenario-based programming, usability-oriented perception. *ACM Transactions on Computing Education*, 14(3):21:1–21:??, November 2014. CODEN ???? ISSN 1946-6226.

Allinjawi:2014:ADA

[AANK14] Arwa A. Allinjawi, Hana A. Al-Nuaim, and Paul Krause. An achievement degree analysis approach to identifying learning problems in object-oriented programming. *ACM Transactions on Computing Education*, 14(3):20:1–20:??, November 2014. CODEN ???? ISSN 1946-6226.

Atiq:2024:HDF

[AB24] Zahra Atiq and Rakhi Batra. How do first-year engineering students' emotions change while working on programming problems? *ACM Transactions on Computing Education*, 24 (2):24:1–24:??, May 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3643865`.

Ardimento:2020:RBS

[ABCD20] Pasquale Ardimento, Mario Luca Bernardi, Marta Cimitile, and Giuseppe De Ruvo. Reusing bugged source code to support novice programmers in debugging tasks. *ACM Transactions on Computing Education*, 20(1):2:1–2:24, February 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3355616`.

Abuzaghleh:2013:IAH

[AGEL13] Omar Abuzaghleh, Kathleen Goldschmidt, Yasser Elleithy, and Jeongkyu Lee. Implementing an affordable high-performance computing for teaching-oriented computer science curriculum. *ACM Transactions on Computing Education*, 13(1):3:1–3:??, January 2013. CODEN ???? ISSN 1946-6226.

Ahadi:2017:CTD

[AHL17] Alireza Ahadi, Arto Hellas, and Raymond Lister. A contingency table derived method for analyzing course data. *ACM Transactions on Computing Education*, 17(3):13:1–13:??, August 2017. CODEN ???? ISSN 1946-6226.

Armstrong:2020:KSA

[AJNN20] Miriam E. Armstrong, Keith S. Jones, Akbar Siami Namin, and David C. Newton. Knowledge, skills, and abilities for specialized curricula in cyber defense: Results from interviews with cyber professionals. *ACM Transactions on Computing Education*, 20(4):29:1–29:25, November 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3421254`.

Akdur:2023:ASE

[Akd23] Deniz Akdur. Analysis of software engineering skills gap in the industry. *ACM Transactions on Computing Education*, 23(1):16:1–16:??, March 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3567837`.

Atiq:2022:QSE

[AL22] Zahra Atiq and Michael C. Loui. A qualitative study of emotions experienced by first-year engineering students during programming tasks. *ACM Transactions on Computing Education*, 22(3):32:1–32:??, September 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3507696`.

Albluwi:2020:PPA

[Alb20] Ibrahim Albluwi. Plagiarism in programming assessments: a systematic review. *ACM Transactions on Computing Education*, 20(1):6:1–6:28, February 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3371156`.

Acher:2017:TSP

[ALHR17] Mathieu Acher, Roberto E. Lopez-Herrejon, and Rick Rabiser. Teaching software product lines: a snapshot of current practices and challenges. *ACM Transactions on Computing Education*, 18(1):2:1–2:??, December 2017. CODEN ???? ISSN 1946-6226.

Allison:2023:CCE

[All23] Jordan Allison. Classifying the characteristics of effective continuing professional development (CPD) for computer science teachers in the 16-18 sector. *ACM Transactions on Computing Education*, 23(2):26:1–26:??, June 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3582275`.

Apiola:2012:CSL

[ALP12] Mikko Apiola, Matti Lattu, and Tomi A. Pasanen. Creativity-supporting learning environment—CSLE. *ACM Transactions on Computing Education*, 12(3):11:1–11:??, July 2012. CODEN ???? ISSN 1946-6226.

Arawjo:2021:ICE

[AM21] Ian Arawjo and Ariam Mogos. Intercultural computing education: Toward justice across difference. *ACM Transactions on Computing Education*, 21(4):30:1–30:33, December 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3458037`.

Allen:2022:TFT

[AMD22] Becky Allen, Andrew Stephen McGough, and Marie Devlin. Toward a framework for teaching artificial intelligence to a higher education audience. *ACM Transactions on Com-*

puting Education, 22(2):15:1–15:29, June 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3485062.

Armoni:2015:SRP

[AMSBA15] Michal Armoni, Orni Meerbaum-Salant, and Mordechai Ben-Ari. From scratch to "real" programming. *ACM Transactions on Computing Education*, 14 (4):25:1–25:??, February 2015. CODEN ???? ISSN 1946-6226.

Armoni:2011:LST

[Arm11] Michal Armoni. Looking at secondary teacher preparation through the lens of computer science. *ACM Transactions on Computing Education*, 11 (4):23:1–23:??, November 2011. CODEN ???? ISSN 1946-6226.

Abreu:2019:MCQ

[ASG19] Pedro Henriques Abreu, Daniel Castro Silva, and Anabela Gomes. Multiple-choice questions in programming courses: Can we use them and are students motivated by them? *ACM Transactions on Computing Education*, 19(1):6:1–6:??, January 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3243137.

Aivaloglou:2021:ESS

[AvdM21] Efthimia Aivaloglou and Anna van der Meulen. An empirical study of students' perceptions on the setup and grading of group programming assignments. *ACM Transactions on Computing Education*, 21 (3):17:1–17:22, July 2021. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3440994.

Alston:2015:UTC

[AWW15] Peter Alston, David Walsh, and Gary Westhead. Uncovering "threshold concepts" in Web development: an instructor perspective. *ACM Transactions on Computing Education*, 15 (1):2:1–2:??, March 2015. CODEN ???? ISSN 1946-6226.

Ahmad:2020:IGL

[AZK+20] Adnan Ahmad, Furkh Zeshan, Muhammad Salman Khan, Rutab Marriam, Amjad Ali, and Alia Samreen. The impact of gamification on learning outcomes of computer science majors. *ACM Transactions on Computing Education*, 20(2): 16:1–16:25, May 2020. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/abs/10.1145/3383456.

Brown:2017:NJP

[BA17] Neil C. C. Brown and Amjad Altadmri. Novice Java programming mistakes: Large-scale data vs. educator beliefs. *ACM Transactions on Computing Education*, 17(2):7:1–7:??, June 2017. CODEN ???? ISSN 1946-6226.

Ben-Ari:2013:ISI

[BAGM13] Mordechai Ben-Ari, Dan Garcia, and Tom Murphy. In-

troduction to the special issue on concurrent and parallel programming. *ACM Transactions on Computing Education*, 13(1):1:1–1:??, January 2013. CODEN ???? ISSN 1946-6226.

Barker:2009:SFP

[Bar09] L. Barker. Student and faculty perceptions of undergraduate research experiences in computing. *ACM Transactions on Computing Education*, 9(1): 5:1–5:??, March 2009. CODEN ???? ISSN 1946-6226.

Bell:2014:CSI

[BAR14] Tim Bell, Peter Andreae, and Anthony Robins. A case study of the introduction of computer science in NZ schools. *ACM Transactions on Computing Education*, 14(2):10:1–10:??, June 2014. CODEN ???? ISSN 1946-6226.

Baldwin:2010:GEI

[BB10] Doug Baldwin and Alyce Brady. Guest Editors' introduction: Computer science in the liberal arts. *ACM Transactions on Computing Education*, 10 (1):1:1–1:??, March 2010. CODEN ???? ISSN 1946-6226.

Baldwin:2010:CSL

[BBD+10] D. Baldwin, A. Brady, A. Danyluk, J. Adams, and A. Lawrence. Case studies of liberal arts computer science programs. *ACM Transactions on Computing Education*, 10(1):4:1–4:??, March 2010. CODEN ???? ISSN 1946-6226.

Bresnihan:2021:PIC

[BBF+21] Nina Bresnihan, Aibhín Bray, Lorraine Fisher, Glenn Strong, Richard Millwood, and Brendan Tangney. Parental involvement in computer science education and computing attitudes and behaviours in the home: Model and scale development. *ACM Transactions on Computing Education*, 21 (3):18:1–18:24, July 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3440890`.

Benda:2012:WLL

[BBG12] Klara Benda, Amy Bruckman, and Mark Guzdial. When life and learning do not fit: Challenges of workload and communication in introductory computer science online. *ACM Transactions on Computing Education*, 12(4):15:1–15:??, November 2012. CODEN ???? ISSN 1946-6226.

Brennan:2022:DSD

[BBSPK22] Karen Brennan, Sarah Blum-Smith, Laura Peters, and Jane Kang. Designing for student-directedness: How K-12 teachers utilize peers to support projects. *ACM Transactions on Computing Education*, 22 (2):10:1–10:18, June 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3476515`.

Benkrid:2012:DHD

[BC12] Khaled Benkrid and Thomas

Clayton. Digital hardware design teaching: an alternative approach. *ACM Transactions on Computing Education*, 12 (4):13:1–13:??, November 2012. CODEN ???? ISSN 1946-6226.

Beck:2013:CLI

[BC13] Leland Beck and Alexander Chizhik. Cooperative learning instructional methods for CS1: Design, implementation, and evaluation. *ACM Transactions on Computing Education*, 13(3):10:1–10:??, August 2013. CODEN ???? ISSN 1946-6226.

Bosnic:2019:MDD

[BCC+19] Ivana Bosnić, Federico Ciccozzi, Ivica Crnković, Igor Cavrak, Elisabetta Di Nitto, Raffaela Mirandola, and Mario Zagar. Managing diversity in distributed software development education — a longitudinal case study. *ACM Transactions on Computing Education*, 19(2):10:1–10:??, February 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3218310`.

Bruce:2010:HLA

[BCD10] Kim B. Bruce, Robert D. Cupper, and Robert L. Scot Drysdale. A history of the liberal arts computer science consortium and its model curricula. *ACM Transactions on Computing Education*, 10(1):3:1–3:??, March 2010. CODEN ???? ISSN 1946-6226.

Bosnic:2019:AID

[BCZ19] Ivana Bosnić, Igor Cavrak, and Mario Zagar. Assessing the impact of the distributed software development course on the careers of young software engineers. *ACM Transactions on Computing Education*, 19(2): 8:1–8:??, February 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3274529`.

Baron:2014:CSE

[BDDGT14] Georges-Louis Baron, Beatrice Drot-Delange, Monique Grandbastien, and Françoise Tort. Computer science education in French secondary schools: Historical and didactical perspectives. *ACM Transactions on Computing Education*, 14(2): 11:1–11:??, June 2014. CODEN ???? ISSN 1946-6226.

Bernat:2023:WNF

[Ber23] Alex Bernat. We need to fix secondary school computer science. *ACM Transactions on Computing Education*, 23 (4):38:1–38:??, December 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3617599`.

Bendler:2023:CMI

[BF23] Daniel Bendler and Michael Felderer. Competency models for information security and cybersecurity professionals: Analysis of existing work and a new model. *ACM Transactions on Computing Education*, 23

(2):25:1–25:??, June 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3573205.

Borstler:2016:TPC

[BH16] Jürgen Börstler and Thomas B. Hilburn. Team projects in computing education. *ACM Transactions on Computing Education*, 16(2):4:1–4:??, March 2016. CODEN ???? ISSN 1946-6226.

Bellino:2021:RWA

[BHHMG21] Alessio Bellino, Valeria Herskovic, Michael Hund, and Jorge Munoz-Gama. A real-world approach to motivate students on the first class of a computer science course. *ACM Transactions on Computing Education*, 21(3):22:1–22:23, July 2021. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3445982.

Bowman:2021:IPP

[BJCS21] Nicholas A. Bowman, Lindsay Jarratt, KC Culver, and Alberto M. Segre. The impact of pair programming on college students' interest, perceptions, and achievement in computer science. *ACM Transactions on Computing Education*, 21(3):19:1–19:19, July 2021. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3440759.

Belland:2023:GEE

[BKZL23] Brian R. Belland, Chanmin Kim, Anna Y. Zhang, and Eunseo Lee. A generalized estimating equations approach to investigate predictors of teacher candidates' views of coding. *ACM Transactions on Computing Education*, 23(2):29:1–29:??, June 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3587163.

Buchanan:2014:CSB

[BL14] Sarah Buchanan and Joseph J. Laviola, Jr. CSTutor: a sketch-based tool for visualizing data structures. *ACM Transactions on Computing Education*, 14(1):3:1–3:??, March 2014. CODEN ???? ISSN 1946-6226.

Bellettini:2014:IEI

[BLM+14] Carlo Bellettini, Violetta Lonati, Dario Malchiodi, Mattia Monga, Anna Morpurgo, Mauro Torelli, and Luisa Zecca. Informatics education in Italian secondary schools. *ACM Transactions on Computing Education*, 14(2):15:1–15:??, June 2014. CODEN ???? ISSN 1946-6226.

Bruce-Lockhart:2009:ATG

[BLNC09] Michael Bruce-Lockhart, Theodore Norvell, and Pierluigi Crescenzi. Adding test generation to the teaching machine. *ACM Transactions on Computing Education*, 9(2):12:1–12:??, June 2009. CODEN ???? ISSN 1946-6226.

Blumenthal:2022:AAN

[Blu22] Richard Blumenthal. Alignment among normative, prescriptive, and descriptive models of computer science curriculum: The effect of ABET accreditation on CS education. *ACM Transactions on Computing Education*, 22(3):35:1–35:??, September 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3513141`.

Braught:2018:MIP

[BMB+18] Grant Braught, John Maccormick, James Bowring, Quinn Burke, Barbara Cutler, David Goldschmidt, Mukkai Krishnamoorthy, Wesley Turner, Steven Huss-Lederman, Bonnie Mackellar, and Allen Tucker. A multi-institutional perspective on H/FOSS projects in the computing curriculum. *ACM Transactions on Computing Education*, 18(2):7:1–7:??, July 2018. CODEN ???? ISSN 1946-6226.

Borstler:2011:QEI

[BNP11] Jürgen Börstler, Marie Nordström, and James H. Paterson. On the quality of examples in introductory Java textbooks. *ACM Transactions on Computing Education*, 11(1):3:1–3:??, February 2011. CODEN ???? ISSN 1946-6226.

Bolloju:2022:TLD

[Bol22] Narasimha Bolloju. Teaching and learning domain modeling through collaboration patterns: a controlled experiment. *ACM Transactions on Computing Education*, 22(3):36:1–36:??, September 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3513139`.

Branthome:2024:PDE

[Bra24] Matthieu Branthôme. Pyrates: Design and evaluation of a serious game aimed at introducing Python programming and easing the transition from blocks. *ACM Transactions on Computing Education*, 24(1):12:1–12:??, March 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3639061`.

Bennedsen:2010:BVD

[BS10] Jens Bennedsen and Carsten Schulte. BlueJ visual debugger for learning the execution of object-oriented programs? *ACM Transactions on Computing Education*, 10(2):8:1–8:??, June 2010. CODEN ???? ISSN 1946-6226.

Belle:2023:BPB

[BSA+23] Alvine B. Belle, Callum Sutherland, Opeyemi O. Adesina, Sègla Kpodjedo, Nathanael Ojong, and Lisa Cole. Bolstering the persistence of black students in undergraduate computer science programs: a systematic mapping study. *ACM Transactions on Computing Education*, 23(4):40:1–40:??,

December 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3617896.

Brown:2014:RRC

[BSCH14] Neil C. C. Brown, Sue Sentance, Tom Crick, and Simon Humphreys. Restart: The resurgence of computer science in UK schools. *ACM Transactions on Computing Education*, 14(2):9:1–9:??, June 2014. CODEN ???? ISSN 1946-6226.

Braswell:2024:MMB

[BSP24] Khalia Braswell, Simone Smarr, and Jamie Payton. Mirror mentoring: Black women's experiences serving as mentors for black girls during a virtual computer science camp. *ACM Transactions on Computing Education*, 24(2):19:1–19:??, May 2024. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3634684.

Burgiel:2020:AHS

[BSS20] Heidi Burgiel, Philip M. Sadler, and Gerhard Sonnert. The association of high school computer science content and pedagogy with students' success in college computer science. *ACM Transactions on Computing Education*, 20(2):13:1–13:21, May 2020. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/abs/10.1145/3381995.

Brusilovsky:2010:LSP

[BSY+10] Peter Brusilovsky, Sergey Sosnovsky, Michael V. Yudelson, Danielle H. Lee, Vladimir Zadorozhny, and Xin Zhou. Learning SQL programming with interactive tools: From integration to personalization. *ACM Transactions on Computing Education*, 9(4):19:1–19:??, January 2010. CODEN ???? ISSN 1946-6226.

Billingsley:2019:TSC

[BTF+19] William Billingsley, Rosemary Torbay, Peter R. Fletcher, Richard N. Thomas, Jim R. H. Steel, and Jörn Guy Süß. Taking a studio course in distributed software engineering from a large local cohort to a small global cohort. *ACM Transactions on Computing Education*, 19(2):13:1–13:??, February 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3218284.

Burgstahler:2011:UDI

[Bur11] Sheryl Burgstahler. Universal design: Implications for computing education. *ACM Transactions on Computing Education*, 11(3):19:1–19:??, October 2011. CODEN ???? ISSN 1946-6226.

Babes-Vroman:2022:GDC

[BVNN22] Monica Babes-Vroman, Thuytien N. Nguyen, and Thu D. Nguyen. Gender diversity in computer science at a large

public R1 research University: Reporting on a self-study. *ACM Transactions on Computing Education*, 22(2): 13:1–13:31, June 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3471572`.

Braught:2011:CPP

[BWE11] Grant Braught, Tim Wahls, and L. Marlin Eby. The case for pair programming in the computer science classroom. *ACM Transactions on Computing Education*, 11(1):2:1–2:??, February 2011. CODEN ???? ISSN 1946-6226. URL `http://portal.acm.org/citation.cfm?id=1921609`.

Brown:2023:NUJ

[BWTS+23] Neil C. C. Brown, Pierre Weill-Tessier, Maksymilian Sekula, Alexandra-Lucia Costache, and Michael Kölling. Novice use of the Java programming language. *ACM Transactions on Computing Education*, 23(1): 10:1–10:??, March 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3551393`.

Brown:2024:TEC

[BXS+24] Noelle Brown, Benjamin Xie, Ella Sarder, Casey Fiesler, and Eliane S. Wiese. Teaching ethics in computing: a systematic literature review of ACM computer science education publications. *ACM Transactions on Computing Education*, 24(1):6:1–6:??, March 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3634685`.

Choi:2015:CEK

[CAL15] Jeongwon Choi, Sangjin An, and Youngjun Lee. Computing education in Korea — current issues and endeavors. *ACM Transactions on Computing Education*, 15(2):8:1–8:??, May 2015. CODEN ???? ISSN 1946-6226.

Clear:2019:GSE

[CB19] Tony Clear and Sarah Beecham. Global software engineering education practice continuum special issue of the *ACM Transactions on Computing Education*. *ACM Transactions on Computing Education*, 19(2): 7:1–7:??, February 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3294011`.

Clarke:2022:CLE

[CDB+22] Peter J. Clarke, Debra L. Davis, Ingrid A. Buckley, Geoff Potvin, Mandayam Thirunarayanan, and Edward L. Jones. Combining learning and engagement strategies in a software testing learning environment. *ACM Transactions on Computing Education*, 22(2):11:1–11:25, June 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3469131`.

Clarke:2017:IUT

[CDCLK17] Peter J. Clarke, Debra L. Davis, Raymond Chang-Lau, and Tariq M. King. Impact of using tools in an undergraduate software testing course supported by WReSTT. *ACM Transactions on Computing Education*, 17(4):18:1–18:??, September 2017. CODEN ???? ISSN 1946-6226.

Clarke:2014:ITS

[CDK+14] Peter J. Clarke, Debra Davis, Tariq M. King, Jairo Pava, and Edward L. Jones. Integrating testing into software engineering courses supported by a collaborative learning environment. *ACM Transactions on Computing Education*, 14 (3):18:1–18:??, November 2014. CODEN ???? ISSN 1946-6226.

Crawford:2019:BBI

[CG19] Chris S. Crawford and Juan E. Gilbert. Brains and blocks: Introducing novice programmers to brain-computer interface application development. *ACM Transactions on Computing Education*, 19(4):39:1–39:??, November 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3335815`.

Cortazar:2024:PSL

[CGON24] Catalina Cortázar, Iñaki Goñi, Andrea Ortiz, and Miguel Nussbaum. Are professional skills learnable? beliefs and expectations among computing graduates. *ACM Transactions on Computing Education*, 24(2):23:1–23:??, May 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3641551`.

Conn:2020:UMF

[CGZ+20] Paula Conn, Taylor Gotfrid, Qiwen Zhao, Rachel Celestine, Vaishnavi Mande, Kristen Shinohara, Stephanie Ludi, and Matt Huenerfauth. Understanding the motivations of final-year computing undergraduates for considering accessibility. *ACM Transactions on Computing Education*, 20 (2):15:1–15:22, May 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3381911`.

Carter:2017:BMP

[CHA17] Adam S. Carter, Christopher D. Hundhausen, and Olusola Adesope. Blending measures of programming and social behavior into predictive models of student achievement in early computing courses. *ACM Transactions on Computing Education*, 17(3):12:1–12:??, August 2017. CODEN ???? ISSN 1946-6226.

Crutchfield:2011:BFO

[CHH+11] Orpheus S. L. Crutchfield, Christopher D. Harrison, Guy Haas, Daniel D. Garcia, Sheila M. Humphreys, Colleen M. Lewis, and Peter Khooshabeh.

Berkeley Foundation for Opportunities in Information Technology: a decade of broadening participation. *ACM Transactions on Computing Education*, 11(3):15:1–15:??, October 2011. CODEN ???? ISSN 1946-6226.

Carro:2013:MDA

[CHM13] Manuel Carro, Ángel Herranz, and Julio Mariño. A model-driven approach to teaching concurrency. *ACM Transactions on Computing Education*, 13(1):5:1–5:??, January 2013. CODEN ???? ISSN 1946-6226.

Crues:2018:HDG

[CHP+18] R. Wes Crues, Genevieve M. Henricks, Michelle Perry, Suma Bhat, Carolyn J. Anderson, Najmuddin Shaik, and Lawrence Angrave. How do gender, learning goals, and forum participation predict persistence in a computer science MOOC? *ACM Transactions on Computing Education*, 18(4):18:1–18:??, November 2018. CODEN ???? ISSN 1946-6226.

Cross:2009:RGD

[CHU+09] James H. Cross II, T. Dean Hendrix, David A. Umphress, Larry A. Barowski, Jhilmil Jain, and Lacey N. Montgomery. Robust generation of dynamic data structure visualizations with multiple interaction approaches. *ACM Transactions on Computing Education*, 9(2):13:1–13:??, June 2009. CODEN ???? ISSN 1946-6226.

Cosma:2017:PCS

[CJS+17] Georgina Cosma, Mike Joy, Jane Sinclair, Margarita Andreou, Dongyong Zhang, Beverley Cook, and Russell Boyatt. Perceptual comparison of source-code plagiarism within students from UK, China, and South Cyprus higher education institutions. *ACM Transactions on Computing Education*, 17(2):8:1–8:??, June 2017. CODEN ???? ISSN 1946-6226.

Caspersen:2009:SFP

[CK09] Michael E. Caspersen and Michael Kolling. STREAM: A first programming process. *ACM Transactions on Computing Education*, 9(1):4:1–4:??, March 2009. CODEN ???? ISSN 1946-6226.

Chen:2021:HSC

[CKSS21] Chen Chen, Jane M. Kang, Gerhard Sonnert, and Philip M. Sadler. High school calculus and computer science course taking as predictors of success in introductory college computer science. *ACM Transactions on Computing Education*, 21(1):6:1–6:21, March 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3433169`.

Clarke-Midura:2019:UID

[CMSP+19] Jody Clarke-Midura, Chongning Sun, Katarina Pantic, Frederick Poole, and Vicki Allan.

Using informed design in informal computer science programs to increase youths' interest, self-efficacy, and perceptions of parental support. *ACM Transactions on Computing Education*, 19(4):37:1–37:??, November 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3319445`.

Clarke-Midura:2020:MAA

[CMSP20] Jody Clarke-Midura, Chongning Sun, and Katarina Pantic. Making apps: an approach to recruiting youth to computer science. *ACM Transactions on Computing Education*, 20 (4):30:1–30:23, November 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3425710`.

Cohen:2024:FIS

[COK24] Anael Kuperwajs Cohen, Alannah Oleson, and Amy J. Ko. Factors influencing the social help-seeking behavior of introductory programming students in a competitive university environment. *ACM Transactions on Computing Education*, 24(1):11:1–11:??, March 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3639059`.

Cooper:2010:DA

[Coo10] Stephen Cooper. The design of Alice. *ACM Transactions on Computing Education*, 10 (4):15:1–15:??, November 2010. CODEN ???? ISSN 1946-6226.

dAmore:2010:SOV

[d'A10] Roberto d'Amore. A synthesis-oriented VHDL course. *ACM Transactions on Computing Education*, 10(2):6:1–6:??, June 2010. CODEN ???? ISSN 1946-6226.

Dahlberg:2011:SAV

[DBBR11] Teresa Dahlberg, Tiffany Barnes, Kim Buch, and Audrey Rorrer. The STARS alliance: Viable strategies for broadening participation in computing. *ACM Transactions on Computing Education*, 11(3):18:1–18:??, October 2011. CODEN ???? ISSN 1946-6226.

Duran:2023:PFR

[DBG+23] Rodrigo Duran, Silvia Amélia Bim, Itana Gimenes, Leila Ribeiro, and Ronaldo Celso Messias Correia. Potential factors for retention and intent to dropout in Brazilian computing programs. *ACM Transactions on Computing Education*, 23(3): 36:1–36:??, September 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3607537`.

Deliema:2024:DPO

[DBM24] David Deliema, Jeffrey K. Bye, and Vijay Marupudi. Debugging pathways: Open-ended discrepancy noticing, causal reasoning, and intervening. *ACM Transactions on Computing Education*, 24(2):28:1–

28:??, May 2024. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3650115.

Dou:2020:ECS

[DBR+20] Remy Dou, Karina Bhutta, Monique Ross, Laird Kramer, and Vishodana Thamotharan. The effects of computer science stereotypes and interest on middle school boys' career intentions. *ACM Transactions on Computing Education*, 20(3): 18:1–18:15, September 2020. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3394964.

Denner:2019:DCG

[DCW19] Jill Denner, Shannon Campe, and Linda Werner. Does computer game design and programming benefit children? A meta-synthesis of research. *ACM Transactions on Computing Education*, 19(3):19:1–19:??, June 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3277565.

Drachova:2015:TMR

[DHH+15] Svetlana V. Drachova, Jason O. Hallstrom, Joseph E. Hollingsworth, Joan Krone, Rich Pak, and Murali Sitaraman. Teaching mathematical reasoning principles for software correctness and its assessment. *ACM Transactions on Computing Education*, 15(3): 15:1–15:??, September 2015. CODEN ???? ISSN 1946-6226.

Dominguez:2020:FCA

[DJGIO20] César Domínguez, Arturo Jaime, Francisco J. García-Izquierdo, and Juan J. Olarte. Factors considered in the assessment of computer science engineering capstone projects and their influence on discrepancies between assessors. *ACM Transactions on Computing Education*, 20(2):14:1–14:23, May 2020. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/abs/10.1145/3381836.

Dominguez:2019:EAN

[DJHGI19] César Domínguez, Arturo Jaime, Jónathan Heras, and Francisco J. García-Izquierdo. The effects of adding non-compulsory exercises to an online learning tool on student performance and code copying. *ACM Transactions on Computing Education*, 19(3): 16:1–16:??, June 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3264507.

Doerschuk:2011:IHS

[DLM11] Peggy Doerschuk, Jiangjiang Liu, and Judith Mann. INSPIRED high school computing academies. *ACM Transactions on Computing Education*, 11(2):7:1–7:??, July 2011. CODEN ???? ISSN 1946-6226.

Draper:2023:DTC

[DM23] Steve Draper and Joseph Maguire. The different types

of contributions to knowledge (in CER): All needed, but not all recognised. *ACM Transactions on Computing Education*, 23(1):7:1–7:??, March 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3487053`.

Desportes:2022:GHW

[DMBP22] Kayla Desportes, Kathleen McDermott, Yoav Bergner, and William Payne. "Go[ing] Hard... as a Woman of Color": a case study examining identity work within a performative dance and computing learning environment. *ACM Transactions on Computing Education*, 22(4):49:1–49:??, December 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3531000`.

Duran:2021:RPB

[DSS21] Rodrigo Duran, Juha Sorva, and Otto Seppälä. Rules of program behavior. *ACM Transactions on Computing Education*, 21(4):33:1–33:37, December 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3469128`.

Daleiden:2020:GPP

[DSU20] Patrick Daleiden, Andreas Stefik, and Philip Merlin Uesbeck. GPU programming productivity in different abstraction paradigms: a randomized controlled trial comparing CUDA and thrust. *ACM Transactions on Computing Education*, 20(4):27:1–27:27, November 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3418301`.

Daleiden:2020:ARC

[DSUP20] Patrick Daleiden, Andreas Stefik, P. Merlin Uesbeck, and Jan Pedersen. Analysis of a randomized controlled trial of student performance in parallel programming using a new measurement technique. *ACM Transactions on Computing Education*, 20(3):21:1–21:28, September 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3401892`.

Dolog:2016:APB

[DTT16] Peter Dolog, Lone Leth Thomsen, and Bent Thomsen. Assessing problem-based learning in a software engineering curriculum using Bloom's taxonomy and the IEEE software engineering body of knowledge. *ACM Transactions on Computing Education*, 16(3):9:1–9:??, June 2016. CODEN ???? ISSN 1946-6226.

Duran:2022:CLT

[DZS22] Rodrigo Duran, Albina Zavgorodniaia, and Juha Sorva. Cognitive load theory in computing education research: a review. *ACM Transactions on Computing Education*, 22(4):40:1–40:??, December 2022. CODEN ???? ISSN 1946-

6226. URL https://dl.acm.org/doi/10.1145/3483843.

Eglash:2021:CHC

[EBC+21] Ron Eglash, Audrey Bennett, Laquana Cooke, William Babbitt, and Michael Lachney. Counter-hegemonic computing: Toward computer science education for value generation and emancipation. *ACM Transactions on Computing Education*, 21(4):29:1–29:30, December 2021. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3449024.

Exter:2018:CCP

[ECF18] Marisa Exter, Secil Caskurlu, and Todd Fernandez. Comparing computing professionals' perceptions of importance of skills and knowledge on the job and coverage in undergraduate experiences. *ACM Transactions on Computing Education*, 18(4):21:1–21:??, November 2018. CODEN ???? ISSN 1946-6226.

El-Hamamsy:2023:TMU

[EHBA+23] Laila El-Hamamsy, Barbara Bruno, Sunny Avry, Frédérique Chessel-Lazzarotto, Jessica Dehler Zufferey, and Francesco Mondada. The TACS model: Understanding primary school teachers' adoption of computer science pedagogical content. *ACM Transactions on Computing Education*, 23(2):19:1–19:??, June 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3569587.

El-Hamamsy:2023:RPP

[EHPR+23] Laila El-Hamamsy, Jean-Philippe Pellet, Matthew Roberts, Helena Kovacs, Barbara Bruno, Jessica Dehler Zufferey, and Francesco Mondada. A research-practice partnership to introduce computer science in secondary school: Lessons from a pilot program. *ACM Transactions on Computing Education*, 23(2):27:1–27:??, June 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3583779.

Enstrom:2017:IIM

[EK17] Emma Enström and Viggo Kann. Iteratively intervening with the "most difficult" topics of an algorithms and complexity course. *ACM Transactions on Computing Education*, 17(1):4:1–4:??, January 2017. CODEN ???? ISSN 1946-6226.

Eglash:2011:FSA

[EKSW11] Ron Eglash, Mukkai Krishnamoorthy, Jason Sanchez, and Andrew Woodbridge. Fractal simulations of African design in pre-college computing education. *ACM Transactions on Computing Education*, 11 (3):17:1–17:??, October 2011. CODEN ???? ISSN 1946-6226.

Exter:2012:EEP

[ET12] Marisa Exter and Nichole Turnage. Exploring experienced professionals' reflections on computing education. *ACM Transactions on Computing Education*, 12(3):12:1–12:??, July 2012. CODEN ???? ISSN 1946-6226.

Erete:2021:ATJ

[ETN+21] Sheena Erete, Karla Thomas, Denise Nacu, Jessa Dickinson, Naomi Thompson, and Nichole Pinkard. Applying a transformative justice approach to encourage the participation of Black and Latina girls in computing. *ACM Transactions on Computing Education*, 21 (4):27:1–27:24, December 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3451345`.

Espinal:2024:PDC

[EVM24] Alejandro Espinal, Camilo Vieira, and Alejandra J. Magana. Professional development in computational thinking: a systematic literature review. *ACM Transactions on Computing Education*, 24(2):27:1–27:??, May 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3648477`.

Frezza:2019:ASI

[FDW19] S. Frezza, M. Daniels, and A. Wilkin. Assessing students' IT professional values in a global project setting. *ACM Transactions on Computing Education*, 19(2):9:1–9:??, February 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3231710`.

Fronza:2017:TCT

[FEC17] Ilenia Fronza, Nabil El Ioini, and Luis Corral. Teaching computational thinking using agile software engineering methods: a framework for middle schools. *ACM Transactions on Computing Education*, 17(4):19:1–19:??, September 2017. CODEN ???? ISSN 1946-6226.

Fiebrink:2019:MLE

[Fie19] Rebecca Fiebrink. Machine learning education for artists, musicians, and other creative practitioners. *ACM Transactions on Computing Education*, 19(4):31:1–31:??, November 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3294008`.

Fields:2017:YCP

[FKG17] Deborah A. Fields, Yasmin B. Kafai, and Michael T. Giang. Youth computational participation in the wild: Understanding experience and equity in participating and programming in the online scratch community. *ACM Transactions on Computing Education*, 17(3):15:1–15:??, August 2017. CODEN ???? ISSN 1946-6226.

Flanigan:2022:SBC

[FPSS22] Abraham E. Flanigan, Markeya S. Peteranetz, Duane F. Shell, and Leen-Kiat Soh. Shifting beliefs in computer science: Change in CS student mindsets. *ACM Transactions on Computing Education*, 22(2): 20:1–20:24, June 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3471574`.

Flanigan:2023:RBI

[FPSS23] Abraham E. Flanigan, Markeya S. Peteranetz, Duane F. Shell, and Leen-Kiat Soh. Relationship between implicit intelligence beliefs and maladaptive self-regulation of learning. *ACM Transactions on Computing Education*, 23(3): 32:1–32:??, September 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3595187`.

Ferguson:2024:IRS

[FTD+24] Camille Ferguson, Vanora Thomas, Juan Del Toro, Daniel Light, Kamau Bobb, Peta-Gay Clarke, Shameeka Emanuel, Ed Gronke, Mary Jo Madda, and Imani Jennings. The important role social capital plays in navigating the computing education ecosystem for black girls. *ACM Transactions on Computing Education*, 24(2):17:1–17:??, May 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3632295`.

Fincher:2010:MT

[FU10a] Sally Fincher and Ian Utting. Machines for thinking. *ACM Transactions on Computing Education*, 10(4):13:1–13:??, November 2010. CODEN ???? ISSN 1946-6226.

Fincher:2010:PSI

[FU10b] Sally Fincher and Ian Utting. Preface to special issue on initial learning environments. *ACM Transactions on Computing Education*, 10(4):12:1–12:??, November 2010. CODEN ???? ISSN 1946-6226.

Fisk:2024:RBW

[FWD+24] Susan R. Fisk, Brittany Watts, Courtney Dress, Charlotte Lee, Audrey Rorrer, Tom McKlin, Tiffany Barnes, and Jamie Payton. Retaining black women in computing: a comparative analysis of interventions for computing persistence. *ACM Transactions on Computing Education*, 24(2):20:1–20:??, May 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3635313`.

Grover:2017:FUH

[GBB+17] Shuchi Grover, Satabdi Basu, Marie Bienkowski, Michael Eagle, Nicholas Diana, and John Stamper. A framework for using hypothesis-driven approaches to support data-driven learning analytics in measuring computational thinking in block-based pro-

gramming environments. *ACM Transactions on Computing Education*, 17(3):14:1–14:??, August 2017. CODEN ???? ISSN 1946-6226.

Grosse-bolting:2023:IHC

[GbGG+23] Gregor Große-bölting, Dietrich Gerstenberger, Lara Gildehaus, Andreas Mühling, and Carsten Schulte. Identity in higher computer education research: a systematic literature review. *ACM Transactions on Computing Education*, 23(3):35:1–35:??, September 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3606707`.

Guzdial:2014:GCI

[GEME14] Mark Guzdial, Barbara Ericson, Tom Mcklin, and Shelly Engelman. Georgia computes! An intervention in a US state, with formal and informal education in a policy context. *ACM Transactions on Computing Education*, 14(2):13:1–13:??, June 2014. CODEN ???? ISSN 1946-6226.

Gal-Ezer:2014:TTC

[GES14] Judith Gal-Ezer and Chris Stephenson. A tale of two countries: Successes and challenges in K–12 computer science education in Israel and the United States. *ACM Transactions on Computing Education*, 14(2):8:1–8:??, June 2014. CODEN ???? ISSN 1946-6226.

Goldman:2010:SSC

[GGH+10] Ken Goldman, Paul Gross, Cinda Heeren, Geoffrey L. Herman, Lisa Kaczmarczyk, Michael C. Loui, and Craig Zilles. Setting the scope of concept inventories for introductory computing subjects. *ACM Transactions on Computing Education*, 10(2):5:1–5:??, June 2010. CODEN ???? ISSN 1946-6226.

Garousi:2020:UKG

[GGT20] Vahid Garousi, Gorkem Giray, and Eray Tuzun. Understanding the knowledge gaps of software engineers: an empirical analysis based on SWEBOK. *ACM Transactions on Computing Education*, 20(1):3:1–3:33, February 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3360497`.

Gates:2011:CAH

[GHT+11] Ann Quiroz Gates, Sarah Hug, Heather Thiry, Richard Aló, Mohsen Beheshti, John Fernandez, Nestor Rodriguez, and Malek Adjouadi. The Computing Alliance of Hispanic-Serving Institutions: Supporting hispanics at critical transition points. *ACM Transactions on Computing Education*, 11(3):16:1–16:??, October 2011. CODEN ???? ISSN 1946-6226.

Grover:2017:UPL

[GK17] Shuchi Grover and Ari Korhonen. Unlocking the potential

of learning analytics in computing education. *ACM Transactions on Computing Education*, 17(3):11:1–11:??, August 2017. CODEN ???? ISSN 1946-6226.

Goode:2011:ECS

[GM11] Joanna Goode and Jane Margolis. Exploring computer science: a case study of school reform. *ACM Transactions on Computing Education*, 11(2):12:1–12:??, July 2011. CODEN ???? ISSN 1946-6226.

Goldsmith:2014:FIC

[GM14] Judy Goldsmith and Nicholas Mattei. Fiction as an introduction to computer science research. *ACM Transactions on Computing Education*, 14(1): 4:1–4:??, March 2014. CODEN ???? ISSN 1946-6226.

Garcia:2023:RCI

[GML+23] Rosalinda Garcia, Patricia Morreale, Lara Letaw, Amreeta Chatterjee, Pankati Patel, Sarah Yang, Isaac Tijerina Escobar, Geraldine Jimena Noa, and Margaret Burnett. "Regular" CS × inclusive design = smarter students and greater diversity. *ACM Transactions on Computing Education*, 23(3):34:1–34:??, September 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3603535`.

Grissom:2017:HSC

[GMM17] Scott Grissom, Renée Mccauley, and Laurie Murphy. How student centered is the computer science classroom? A survey of college faculty. *ACM Transactions on Computing Education*, 18(1):5:1–5:??, December 2017. CODEN ???? ISSN 1946-6226.

Garvin:2019:SCS

[GND19] Megean Garvin, Michael Neary, and Marie Desjardins. State case study of computing education governance. *ACM Transactions on Computing Education*, 19(4):35:1–35:??, November 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3320491`.

Grissom:2013:ISI

[Gri13] Scott Grissom. Introduction to special issue on alternatives to lecture in the computer science classroom. *ACM Transactions on Computing Education*, 13 (3):9:1–9:??, August 2013. CODEN ???? ISSN 1946-6226.

Groeneveld:2022:INT

[GVA22] Wouter Groeneveld, Joost Vennekens, and Kris Aerts. Identifying non-technical skill gaps in software engineering education: What experts expect but students don't learn. *ACM Transactions on Computing Education*, 22(1):1:1–1:21, March 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3464431`.

Gretter:2019:ELE

[GYSH19] Sarah Gretter, Aman Yadav, Phil Sands, and Susanne Hambrusch. Equitable learning environments in K-12 computing: Teachers' views on barriers to diversity. *ACM Transactions on Computing Education*, 19 (3):24:1–24:??, June 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3282939`.

Hundhausen:2013:TAC

[HAA13] Christopher D. Hundhausen, Anukrati Agrawal, and Pawan Agarwal. Talking about code: Integrating pedagogical code reviews into early computing courses. *ACM Transactions on Computing Education*, 13(3): 14:1–14:??, August 2013. CODEN ???? ISSN 1946-6226.

Hubwieser:2015:MRM

[HAG15a] Peter Hubwieser, Michal Armoni, and Michail Giannakos. In memoriam: Roland Mittermeir (1950–2014). *ACM Transactions on Computing Education*, 15(2):6:1–6:??, May 2015. CODEN ???? ISSN 1946-6226.

Hubwieser:2015:HIR

[HAG15b] Peter Hubwieser, Michal Armoni, and Michail N. Giannakos. How to implement rigorous computer science education in K–12 schools? Some answers and many questions. *ACM Transactions on Computing Education*, 15(2):5:1–5:??, May 2015. CODEN ???? ISSN 1946-6226.

Hubwieser:2014:PVC

[HAGM14] Peter Hubwieser, Michal Armoni, Michail N. Giannakos, and Roland T. Mittermeir. Perspectives and visions of computer science education in primary and secondary (K–12) schools. *ACM Transactions on Computing Education*, 14 (2):7:1–7:??, June 2014. CODEN ???? ISSN 1946-6226.

Hardin:2021:GDH

[Har21] Caroline D. Hardin. Gender differences in hackathons as a non-traditional educational experience. *ACM Transactions on Computing Education*, 21 (2):13:1–13:30, June 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3433168`.

Hassner:2015:TCV

[HB15] Tal Hassner and Itzik Bayaz. Teaching computer vision: Bringing research benchmarks to the classroom. *ACM Transactions on Computing Education*, 14(4):22:1–22:??, February 2015. CODEN ???? ISSN 1946-6226.

Haldeman:2021:CFF

[HBVTN21] Georgiana Haldeman, Monica Babes-Vroman, Andrew Tjang, and Thu D. Nguyen. CSF: Formative feedback in autograding. *ACM Transactions on Computing Education*, 21

(3):21:1–21:30, July 2021. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3445983.

Hundhausen:2023:CGC

[HCAT23] Christopher Hundhausen, Phill Conrad, Olusola Adesope, and Ahsun Tariq. Combining GitHub, Chat, and peer evaluation data to assess individual contributions to team software development projects. *ACM Transactions on Computing Education*, 23(3):33:1–33:??, September 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3593592.

Heckman:2022:SLR

[HCSAz22] Sarah Heckman, Jeffrey C. Carver, Mark Sherriff, and Ahmed Al-zubidy. A systematic literature review of empiricism and norms of reporting in computing education research literature. *ACM Transactions on Computing Education*, 22 (1):3:1–3:46, March 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3470652.

Hamouda:2019:RIT

[HEE+19] Sally Hamouda, Stephen H. Edwards, Hicham G. Elmongui, Jeremy V. Ernst, and Clifford A. Shaffer. RecurTutor: an interactive tutorial for learning recursion. *ACM Transactions on Computing Education*, 19(1):1:1–1:??, January 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3218328.

Hosseini:2019:LCP

[HHM19] Hadi Hosseini, Maxwell Hartt, and Mehrnaz Mostafapour. Learning IS child's play: Game-based learning in computer science education. *ACM Transactions on Computing Education*, 19(3):22:1–22:??, June 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3282844.

Herman:2012:DWW

[HLKZ12] Geoffrey L. Herman, Michael C. Loui, Lisa Kaczmarczyk, and Craig Zilles. Describing the what and why of students' difficulties in Boolean logic. *ACM Transactions on Computing Education*, 12(1):3:1–3:??, March 2012. CODEN ???? ISSN 1946-6226.

Hjelsvold:2019:EEG

[HM19] Rune Hjelsvold and Deepti Mishra. Exploring and expanding GSE education with open source software development. *ACM Transactions on Computing Education*, 19(2):12:1–12:??, February 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3230012.

Hsu:2021:CBS

[HM21] Hui-Ching Kayla Hsu and Nasir Memon. Crossing the bridge to STEM: Retaining women stu-

dents in an online CS conversion program. *ACM Transactions on Computing Education*, 21(2):11:1–11:16, June 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3440892`.

Hedayati-Mehdiabadi:2022:HDC

[HM22] Amir Hedayati-Mehdiabadi. How do computer science students make decisions in ethical situations? Implications for teaching computing ethics based on a grounded theory study. *ACM Transactions on Computing Education*, 22(3): 37:1–37:??, September 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3483841`.

Hundhausen:2017:IBL

[HOC17] C. D. Hundhausen, D. M. Olivares, and A. S. Carter. IDE-based learning analytics for computing education: a process model, critical review, and research agenda. *ACM Transactions on Computing Education*, 17(3):11:1–11:??, August 2017. CODEN ???? ISSN 1946-6226.

Hu:2013:UPH

[HS13] Helen H. Hu and Tricia D. Shepherd. Using POGIL to help students learn to program. *ACM Transactions on Computing Education*, 13(3):13:1–13:??, August 2013. CODEN ???? ISSN 1946-6226.

Hao:2019:SIR

[HSI+19] Qiang Hao, David H. Smith IV, Naitra Iriumi, Michail Tsikerdekis, and Andrew J. Ko. A systematic investigation of replications in computing education research. *ACM Transactions on Computing Education*, 19(4):42:1–42:??, November 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3345328`.

Hubwieser:2012:CSE

[Hub12] Peter Hubwieser. Computer science education in secondary schools — the introduction of a new compulsory subject. *ACM Transactions on Computing Education*, 12(4):16:1–16:??, November 2012. CODEN ???? ISSN 1946-6226.

Hundhausen:2016:KTP

[Hun16] Christopher D. Hundhausen. Keeping TOCE on a positive trajectory. *ACM Transactions on Computing Education*, 16(1):1:1–1:??, February 2016. CODEN ???? ISSN 1946-6226.

Hundhausen:2017:EDT

[Hun17] C. D. Hundhausen. From the Editor's desk: TOCE continues on a positive trajectory in 2016. *ACM Transactions on Computing Education*, 17(2):5:1–5:??, June 2017. CODEN ???? ISSN 1946-6226.

Isomottonen:2019:SGE

[IDC+19] Ville Isomöttönen, Mats Daniels, Åsa Cajander, Arnold Pears, and Roger Mcdermott. Searching for global employability: Can students capitalize on enabling learning environments? *ACM Transactions on Computing Education*, 19(2):11:1–11:??, February 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3277568`.

Isayama:2017:CSE

[IIRY17] Daiki Isayama, Masaki Ishiyama, Raissa Relator, and Koichi Yamazaki. Computer science education for primary and lower secondary school students: Teaching the concept of automata. *ACM Transactions on Computing Education*, 17(1):2:1–2:??, January 2017. CODEN ???? ISSN 1946-6226.

Israel:2022:EIT

[IKWR22] Maya Israel, Brittany Kester, Jessica J. Williams, and Meg J. Ray. Equity and inclusion through UDL in K–6 computer science education: Perspectives of teachers and instructional coaches. *ACM Transactions on Computing Education*, 22(3):27:1–27:??, September 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3513138`.

Indriasari:2020:RPC

[ILRD20] Theresia Devi Indriasari, Andrew Luxton-Reilly, and Paul Denny. A review of peer code review in higher education. *ACM Transactions on Computing Education*, 20(3):22:1–22:25, September 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3403935`.

Ip:2012:FNI

[Ip12] Barry Ip. Fitting the needs of an industry: An examination of games design, development, and art courses in the UK. *ACM Transactions on Computing Education*, 12(2):6:1–6:??, April 2012. CODEN ???? ISSN 1946-6226.

Isomottonen:2013:TPE

[IT13] Ville Isomöttönen and Ville Tirronen. Teaching programming by emphasizing self-direction: How did students react to the active role required of them? *ACM Transactions on Computing Education*, 13(2):6:1–6:??, June 2013. CODEN ???? ISSN 1946-6226.

Isomottonen:2017:FBA

[IT17] Ville Isomöttönen and Ville Tirronen. Flipping and blending — an action research project on improving a functional programming course. *ACM Transactions on Computing Education*, 17(1):1:1–1:??, January 2017. CODEN ???? ISSN 1946-6226.

Jayathirtha:2020:ISS

[JK20] Gayithri Jayathirtha and Yasmin B. Kafai. Interactive

stitch sampler: a synthesis of a decade of research on using electronic textiles to answer the who, where, how, and what for K–12 computer science education. *ACM Transactions on Computing Education*, 20 (4):28:1–28:29, November 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3418299`.

Jacob:2022:EWW

[JMN+22] Sharin Rawhiya Jacob, Jonathan Montoya, Ha Nguyen, Debra Richardson, and Mark Warschauer. Examining the what, why, and how of multilingual student identity development in computer science. *ACM Transactions on Computing Education*, 22(3): 29:1–29:??, September 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3500918`.

Jones:2018:CCD

[JNA18] Keith S. Jones, Akbar Siami Namin, and Miriam E. Armstrong. The core cyber-defense knowledge, skills, and abilities that cybersecurity students should learn in school: Results from interviews with cybersecurity professionals. *ACM Transactions on Computing Education*, 18(3):11:1–11:??, September 2018. CODEN ???? ISSN 1946-6226.

Johnson:2019:DEA

[Joh19] Philip Johnson. Design and evaluation of an "athletic" approach to software engineering education. *ACM Transactions on Computing Education*, 19 (4):41:1–41:??, November 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3344273`.

Kunkle:2016:IDT

[KA16] Wanda M. Kunkle and Robert B. Allen. The impact of different teaching approaches and languages on student learning of introductory programming concepts. *ACM Transactions on Computing Education*, 16(1): 3:1–3:??, February 2016. CODEN ???? ISSN 1946-6226.

Karavirta:2009:SMH

[Kar09] Ville Karavirta. Seamless merging of hypertext and algorithm animation. *ACM Transactions on Computing Education*, 9(2): 10:1–10:??, June 2009. CODEN ???? ISSN 1946-6226.

Killen:2023:TEI

[KCB+23] Heather Killen, Merijke Coenraad, Virginia Byrne, Lautaro Cabrera, Kelly Mills, Diane Jass Ketelhut, and Jandelyn D. Plane. Teacher education to integrate computational thinking into elementary science: a design-based research study. *ACM Transactions on Computing Education*, 23 (4):41:1–41:??, December 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3618115`.

Ko:2023:DAS

[KDM+23] Amy J. Ko, Steve Draper, Joseph Maguire, John Pajunen, Matti Tedre, Jane Sinclair, and Claudia Szabo. A dialog about the special issues on theory. *ACM Transactions on Computing Education*, 23 (1):8:1–8:??, March 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3554982`.

Kather:2022:TTT

[KDV22] Philipp Kather, Rodrigo Duran, and Jan Vahrenhold. Through (tracking) their eyes: Abstraction and complexity in program comprehension. *ACM Transactions on Computing Education*, 22(2):17:1–17:33, June 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3480171`.

Krusche:2018:STT

[KDXB18] Stephan Krusche, Dora Dzvonyar, Han Xu, and Bernd Bruegge. Software theater-teaching demo-oriented prototyping. *ACM Transactions on Computing Education*, 18(2): 10:1–10:??, July 2018. CODEN ???? ISSN 1946-6226.

Kim:2011:EWC

[KFME11] Karen A. Kim, Amy J. Fann, and Kimberly O. Misa-Escalante. Engaging women in computer science and engineering: Promising practices for promoting gender equity in undergraduate research experiences. *ACM Transactions on Computing Education*, 11(2): 8:1–8:??, July 2011. CODEN ???? ISSN 1946-6226.

Korhonen:2018:SSI

[KG18] Ari Korhonen and Shuchi Grover. Second special issue on learning analytics in computing education. *ACM Transactions on Computing Education*, 18(4):16:1–16:??, November 2018. CODEN ???? ISSN 1946-6226.

Kang:2022:IUI

[KG22] Jin Kang and Audrey Girouard. Impact of UX internships on human-computer interaction graduate students: a qualitative analysis of internship reports. *ACM Transactions on Computing Education*, 22 (4):48:1–48:??, December 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3517132`.

Kiesmuller:2009:DLP

[Kie09] Ulrich Kiesmüller. Diagnosing learners' problem-solving strategies using learning environments with algorithmic problems in secondary education. *ACM Transactions on Computing Education*, 9(3): 17:1–17:??, September 2009. CODEN ???? ISSN 1946-6226.

Keuning:2019:SLR

[KJH19] Hieke Keuning, Johan Jeuring, and Bastiaan Heeren. A systematic literature review

of automated feedback generation for programming exercises. *ACM Transactions on Computing Education*, 19(1): 3:1–3:??, January 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3231711`.

Kaila:2016:ROO

[KKLL16] Erkki Kaila, Einari Kurvinen, Erno Lokkila, and Mikko-Jussi Laakso. Redesigning an object-oriented programming course. *ACM Transactions on Computing Education*, 16(4):18:1–18:??, October 2016. CODEN ???? ISSN 1946-6226.

Kim:2021:ECT

[KKNL21] Han Sung Kim, Soohwan Kim, Wooyoul Na, and Woon Jee Lee. Extending computational thinking into information and communication technology literacy measurement: Gender and grade issues. *ACM Transactions on Computing Education*, 21(1):5:1–5:25, March 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3427596`.

Koulouri:2015:TIP

[KLM15] Theodora Koulouri, Stanislao Lauria, and Robert D. Macredie. Teaching introductory programming: a quantitative evaluation of different approaches. *ACM Transactions on Computing Education*, 14 (4):26:1–26:??, February 2015. CODEN ???? ISSN 1946-6226.

Kafai:2014:COA

[KLS+14] Yasmin B. Kafai, Eunkyoung Lee, Kristin Searle, Deborah Fields, Eliot Kaplan, and Debora Lui. A crafts-oriented approach to computing in high school: Introducing computational concepts, practices, and perspectives with electronic textiles. *ACM Transactions on Computing Education*, 14(1):1:1–1:??, March 2014. CODEN ???? ISSN 1946-6226.

Kolling:2016:HEN

[KM16] Michael Kölling and Fraser McKay. Heuristic evaluation for novice programming systems. *ACM Transactions on Computing Education*, 16(3):12:1–12:??, June 2016. CODEN ???? ISSN 1946-6226.

Knobelsdorf:2015:CSE

[KMB+15] Maria Knobelsdorf, Johannes Magenheim, Torsten Brinda, Dieter Engbring, Ludger Humbert, Arno Pasternak, Ulrik Schroeder, Marco Thomas, and Jan Vahrenhold. Computer science education in North-Rhine Westphalia, Germany — a case study. *ACM Transactions on Computing Education*, 15(2): 9:1–9:??, May 2015. CODEN ???? ISSN 1946-6226.

Kao:2022:OLN

[KMW22] Yvonne Kao, Bryan Matlen, and David Weintrop. From one language to the next: Applications of analogical trans-

fer for programming education. *ACM Transactions on Computing Education*, 22(4):42:1–42:??, December 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3487051`.

Ko:2022:NSA

[Ko22a] Amy Ko. Next steps for ACM TOCE. *ACM Transactions on Computing Education*, 22(3):22:1–22:??, September 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3530983`.

Kutay:2022:CMD

[KO22b] Emine Kutay and Diler Oner. Coding with `Minecraft`: The development of middle school students' computational thinking. *ACM Transactions on Computing Education*, 22(2):21:1–21:19, June 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3471573`.

Kolling:2010:GPE

[Köl10] Michael Kölling. The Greenfoot programming environment. *ACM Transactions on Computing Education*, 10(4):14:1–14:??, November 2010. CODEN ???? ISSN 1946-6226.

Kori:2018:ASP

[KPM18] Külli Kori, Margus Pedaste, and Olev Must. The academic, social, and professional integration profiles of information technology students. *ACM Transactions on Computing Education*, 18(4):20:1–20:??, November 2018. CODEN ???? ISSN 1946-6226.

Kargarmoakhar:2024:ICP

[KRH+24] Maral Kargarmoakhar, Monique Ross, Zahra Hazari, Stephen Secules, Mark Allen Weiss, Michael Georgiopoulos, Kenneth Christensen, and Tiana Solis. The impact of a community of practice scholarship program on students' computing identity. *ACM Transactions on Computing Education*, 24(1):8:1–8:??, March 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3623615`.

Khenner:2014:SSI

[KS14] Evgeniy Khenner and Igor Semakin. School subject informatics (computer science) in Russia: Educational relevant areas. *ACM Transactions on Computing Education*, 14(2):14:1–14:??, June 2014. CODEN ???? ISSN 1946-6226.

Karnalim:2022:ESA

[KSCP22] Oscar Karnalim, Simon, William Chivers, and Billy Susanto Panca. Educating students about programming plagiarism and collusion via formative feedback. *ACM Transactions on Computing Education*, 22(3):31:1–31:??, September 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3506717`.

Kurhila:2015:PMA

[KV15] Jaakko Kurhila and Arto Vihavainen. A purposeful MOOC to alleviate insufficient CS education in Finnish schools. *ACM Transactions on Computing Education*, 15(2):10:1–10:??, May 2015. CODEN ???? ISSN 1946-6226.

Kemp:2020:FPP

[KWB20] Peter E. J. Kemp, Billy Wong, and Miles G. Berry. Female performance and participation in computer science: a national picture. *ACM Transactions on Computing Education*, 20(1): 4:1–4:28, February 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3366016`.

Lai:2022:BPC

[Lai22] Rina P. Y. Lai. Beyond programming: a computer-based assessment of computational thinking competency. *ACM Transactions on Computing Education*, 22(2):14:1–14:27, June 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3486598`.

Largent:2016:MUT

[Lar16] David L. Largent. Measuring and understanding team development by capturing self-assessed enthusiasm and skill levels. *ACM Transactions on Computing Education*, 16(2): 6:1–6:??, March 2016. CODEN ???? ISSN 1946-6226.

Liberman:2011:DLI

[LBK11] Neomi Liberman, Catriel Beeri, and Yifat Ben-David Kolikant. Difficulties in learning inheritance and polymorphism. *ACM Transactions on Computing Education*, 11(1):4:1–4:??, February 2011. CODEN ???? ISSN 1946-6226.

Lovellette:2024:CAP

[LBM24] Ellie Lovellette, Dennis J. Bouvier, and John Matta. Contextualization, authenticity, and the problem description effect. *ACM Transactions on Computing Education*, 24(2): 26:1–26:??, May 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3643864`.

Lawlor:2020:CMS

[LBT20] Grace Lawlor, Philip Byrne, and Brendan Tangney. "CodePlus" — measuring short-term efficacy in a non-formal, all-female CS outreach programme. *ACM Transactions on Computing Education*, 20 (4):25:1–25:18, November 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3411510`.

Lyon:2021:AIW

[LC21] Louise Ann Lyon and Chelsea Clayton. Arising of informal women's learn-to-code communities: Activity systems as incubators. *ACM Transactions on Computing Education*, 21

(2):12:1–12:24, June 2021. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3433167.

Lyon:2019:CLI

[LD19] Louise Ann Lyon and Jill Denner. Chutes and ladders: Institutional setbacks on the computer science community college transfer pathway. *ACM Transactions on Computing Education*, 19(3): 25:1–25:??, June 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3294009.

Lawrence:2023:ESL

[LFU23] Ramon Lawrence, Sarah Foss, and Tatiana Urazova. Evaluation of submission limits and regression penalties to improve student behavior with automatic assessment systems. *ACM Transactions on Computing Education*, 23(3):31:1–31:??, September 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3591210.

Lyon:2021:CBC

[LG21] Louise Ann Lyon and Emily Green. Coding boot camps: Enabling women to enter computing professions. *ACM Transactions on Computing Education*, 21(2):14:1–14:30, June 2021. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3440891.

Lee:2022:BMY

[LGGS22] Clifford H. Lee, Nimah Gobir, Alex Gurn, and Elisabeth Soep. In the black mirror: Youth investigations into artificial intelligence. *ACM Transactions on Computing Education*, 22(3): 25:1–25:??, September 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3484495.

Lee:2013:CPI

[LGP13] Cynthia Bailey Lee, Saturnino Garcia, and Leo Porter. Can peer instruction be effective in upper-division computer science courses? *ACM Transactions on Computing Education*, 13(3):12:1–12:??, August 2013. CODEN ???? ISSN 1946-6226.

Luo:2022:ECT

[LIG22] Feiya Luo, Maya Israel, and Brian Gane. Elementary computational thinking instruction and assessment: a learning trajectory perspective. *ACM Transactions on Computing Education*, 22(2):19:1–19:26, June 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3494579.

Lakanen:2019:IPC

[LK19] Antti-Jussi Lakanen and Tommi Kärkkäinen. Identifying pathways to computer science: The long-term impact of short-term game programming outreach interventions. *ACM Transactions on Computing Education*,

19(3):20:1–20:??, June 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3283070.

Lee:2022:UDR

[LLF22] Lina Lee, Celine Latulipe, and Tonya Frevert. Using discrimination response ideation to uncover student attitudes about diversity and inclusion in computer science. *ACM Transactions on Computing Education*, 22(4):52:1–52:??, December 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3550487.

Lagus:2018:TLM

[LLKH18] Jarkko Lagus, Krista Longi, Arto Klami, and Arto Hellas. Transfer-learning methods in programming course outcome prediction. *ACM Transactions on Computing Education*, 18(4):19:1–19:??, November 2018. CODEN ???? ISSN 1946-6226.

Loksa:2022:MSR

[LMB+22] Dastyni Loksa, Lauren Margulieux, Brett A. Becker, Michelle Craig, Paul Denny, Raymond Pettit, and James Prather. Metacognition and self-regulation in programming education: Theories and exemplars of use. *ACM Transactions on Computing Education*, 22 (4):39:1–39:??, December 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3487050.

Larraza-Mendiluze:2016:URB

[LMGVS+16] Edurne Larraza-Mendiluze, Nestor Garay-Vitoria, Iratxe Soraluze, José Martín, Javier Muguerza, and Txelo Ruiz-Vázquez. Using a real bare machine in a project-based learning environment for teaching computer structure: an analysis of the implementation following the action research model. *ACM Transactions on Computing Education*, 16(3): 13:1–13:??, June 2016. CODEN ???? ISSN 1946-6226.

Lukkarinen:2021:EDP

[LMH21] Aleksi Lukkarinen, Lauri Malmi, and Lassi Haaranen. Event-driven programming in programming education: a mapping review. *ACM Transactions on Computing Education*, 21(1):1:1–1:31, March 2021. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3423956.

Ludi:2011:URP

[LR11] Stephanie Ludi and Tom Reichlmayr. The use of robotics to promote computing to pre-college students with visual impairments. *ACM Transactions on Computing Education*, 11 (3):20:1–20:??, October 2011. CODEN ???? ISSN 1946-6226.

Lunn:2022:HDE

[LRH+22] Stephanie Lunn, Monique Ross, Zahra Hazari, Mark Allen Weiss, Michael Georgiopoulos, and Kenneth Christensen.

How do educational experiences predict computing identity? *ACM Transactions on Computing Education*, 22(2):12:1–12:28, June 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3470653.

Luse:2014:USE

[LRJ14] Andy Luse, Julie A. Rursch, and Doug Jacobson. Utilizing structural equation modeling and social cognitive career theory to identify factors in choice of IT as a major. *ACM Transactions on Computing Education*, 14(3):19:1–19:??, November 2014. CODEN ???? ISSN 1946-6226.

Lachney:2021:ISS

[LRS21] Michael Lachney, Jean Ryoo, and Rafi Santo. Introduction to the special section on justice-centered computing education, Part 1. *ACM Transactions on Computing Education*, 21(4):25:1–25:15, December 2021. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3477981.

Lukowiak:2014:CEB

[LRVW14] Marcin Lukowiak, Stanislaw Radziszowski, James Vallino, and Christopher Wood. Cybersecurity education: Bridging the gap between hardware and software domains. *ACM Transactions on Computing Education*, 14(1):2:1–2:??, March 2014. CODEN ???? ISSN 1946-6226.

Lunn:2022:FPF

[LSHY22] Stephanie Lunn, Maíra Marques Samary, Susanne Hambrusch, and Aman Yadav. Forging a path: Faculty interviews on the present and future of computer science education in the United States. *ACM Transactions on Computing Education*, 22(4):51:1–51:??, December 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3546581.

Luburic:2019:FTS

[LSSM19] Nikola Luburić, Goran Sladić, Jelena Slivka, and Branko Milosavljević. A framework for teaching security design analysis using case studies and the hybrid flipped classroom. *ACM Transactions on Computing Education*, 19(3):21:1–21:??, June 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3289238.

Loraas:2022:SBC

[LSTA22] Madeleine Lorås, Guttorm Sindre, Hallvard Trætteberg, and Trond Aalberg. Study behavior in computing education — a systematic literature review. *ACM Transactions on Computing Education*, 22(1):9:1–9:40, March 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3469129.

Ladner:2011:ISI

[LV11a] Richard Ladner and Tammy VanDeGrift. Introduction to special issue (part 1): Broadening participation in computing education. *ACM Transactions on Computing Education*, 11(2):6:1–6:??, July 2011. CODEN ???? ISSN 1946-6226.

Ladner:2011:SIB

[LV11b] Richard Ladner and Tammy VanDeGrift. Special issue on broadening participation in computing education (part 2). *ACM Transactions on Computing Education*, 11(3):13:1–13:??, October 2011. CODEN ???? ISSN 1946-6226.

Lishinski:2021:SEI

[LY21] Alex Lishinski and Aman Yadav. Self-evaluation interventions: Impact on self-efficacy and performance in introductory programming. *ACM Transactions on Computing Education*, 21(3):23:1–23:28, July 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3447378`.

Lunn:2024:YHP

[LZR24] Stephanie Jill Lunn, Ellen Zerbe, and Monique Ross. You're hired! A phenomenographic study of undergraduate students' pathways to job attainment in computing. *ACM Transactions on Computing Education*, 24(1):7:1–7:??, March 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3636514`.

Lunn:2021:EIC

[LZRO21] Stephanie Lunn, Leila Zahedi, Monique Ross, and Matthew Ohland. Exploration of intersectionality and computer science demographics: Understanding the historical context of shifts in participation. *ACM Transactions on Computing Education*, 21(2):10:1–10:30, June 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3445985`.

Liao:2019:RML

[LZT+19] Soohyun Nam Liao, Daniel Zingaro, Kevin Thai, Christine Alvarado, William G. Griswold, and Leo Porter. A robust machine learning technique to predict low-performing students. *ACM Transactions on Computing Education*, 19(3):18:1–18:??, June 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3277569`.

McDonald:2022:RCL

[MAHC+22] Nora McDonald, Adegboyega Akinsiku, Jonathan Hunter-Cevera, Maria Sanchez, Kerrie Kephart, Mark Berczynski, and Helena M. Mentis. Responsible computing: a longitudinal study of a peer-led ethics learning framework. *ACM Transactions on Com-*

puting Education, 22(4):47:1–47:??, December 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3469130.

McGill:2012:TRI

[MAK12] Tanya McGill, Jocelyn Armarego, and Tony Koppi. The teaching–research–industry–learning nexus in information and communications technology. *ACM Transactions on Computing Education*, 12(1):1:1–1:??, March 2012. CODEN ???? ISSN 1946-6226.

Malmi:2023:RT

[Mal23] Lauri Malmi. Reflections on theory. *ACM Transactions on Computing Education*, 23(1):2:1–2:??, March 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3570728.

McCartney:2016:WCS

[MBE+16] Robert McCartney, Jonas Boustedt, Anna Eckerdal, Kate Sanders, Lynda Thomas, and Carol Zander. Why computing students learn on their own: Motivation for self-directed learning of computing. *ACM Transactions on Computing Education*, 16(1):2:1–2:??, February 2016. CODEN ???? ISSN 1946-6226.

Messer:2024:AGF

[MBKS24] Marcus Messer, Neil C. C. Brown, Michael Kölling, and Miaojing Shi. Automated grading and feedback tools for programming education: a systematic review. *ACM Transactions on Computing Education*, 24(1):10:1–10:??, March 2024. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3636515.

Munasinghe:2023:CTN

[MBR23] Bhagya Munasinghe, Tim Bell, and Anthony Robins. Computational thinking and notional machines: The missing link. *ACM Transactions on Computing Education*, 23(4):44:1–44:??, December 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3627829.

Myller:2009:EET

[MBSBA09] Niko Myller, Roman Bednarik, Erkki Sutinen, and Mordechai Ben-Ari. Extending the engagement taxonomy: Software visualization and collaborative learning. *ACM Transactions on Computing Education*, 9(1):7:1–7:??, March 2009. CODEN ???? ISSN 1946-6226.

Miller:2015:ISI

[MC15] Craig S. Miller and Randy Connolly. Introduction to the special issue on Web development. *ACM Transactions on Computing Education*, 15(1):1:1–1:??, March 2015. CODEN ???? ISSN 1946-6226.

Merkouris:2019:PEI

[MC19] Alexandros Merkouris and Konstantinos Chorianopoulos.

Programming embodied interactions with a remotely controlled educational robot. *ACM Transactions on Computing Education*, 19(4):40:1–40:??, November 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3336126`.

McGill:2012:CPP

[McG12a] Monica M. McGill. The curriculum planning process for undergraduate game degree programs in the United Kingdom and United States. *ACM Transactions on Computing Education*, 12(2):7:1–7:??, April 2012. CODEN ???? ISSN 1946-6226.

McGill:2012:LPP

[McG12b] Monica M. McGill. Learning to program with personal robots: Influences on student motivation. *ACM Transactions on Computing Education*, 12 (1):4:1–4:??, March 2012. CODEN ???? ISSN 1946-6226.

Merkouris:2017:TPS

[MCK17] Alexandros Merkouris, Konstantinos Chorianopoulos, and Achilles Kameas. Teaching programming in secondary education through embodied computing platforms: Robotics and wearables. *ACM Transactions on Computing Education*, 17 (2):9:1–9:??, June 2017. CODEN ???? ISSN 1946-6226.

McGill:2016:USP

[MDS16] Monica M. McGill, Adrienne Decker, and Amber Settle. Undergraduate students' perceptions of the impact of precollege computing activities on choices of major. *ACM Transactions on Computing Education*, 16(4):15:1–15:??, October 2016. CODEN ???? ISSN 1946-6226.

Miedema:2023:EPS

[MFA23] Daphne Miedema, George Fletcher, and Efthimia Aivaloglou. Expert perspectives on student errors in SQL. *ACM Transactions on Computing Education*, 23(1):11:1–11:??, March 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3551392`.

Marin:2019:EIB

[MFCLG19] B. Marín, J. Frez, J. Cruz-Lemus, and M. Genero. An empirical investigation on the benefits of gamification in programming courses. *ACM Transactions on Computing Education*, 19(1):4:1–4:??, January 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3231709`.

Mirakhur:2024:OWH

[MFH24] Zitsi Mirakhur, Cheri Fancsali, and Kathryn Hill. Outsiders within: How do black girls fit into computer science for all? *ACM Transactions*

on Computing Education, 24 (2):16:1–16:??, May 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3633464`.

Magerko:2016:ESB

[MFM+16] Brian Magerko, Jason Freeman, Tom Mcklin, Mike Reilly, Elise Livingston, Scott Mccoid, and Andrea Crews-Brown. EarSketch: a STEAM-based approach for underrepresented populations in high school computer science education. *ACM Transactions on Computing Education*, 16(4):14:1–14:??, October 2016. CODEN ???? ISSN 1946-6226.

Magana:2013:IDB

[MFR13] Alejandra J. Magana, Michael L. Falk, and Michael J. Reese, Jr. Introducing discipline-based computing in undergraduate engineering education. *ACM Transactions on Computing Education*, 13(4):16:1–16:??, November 2013. CODEN ???? ISSN 1946-6226.

Mitrovic:2023:EVB

[MGM+23] Antonija Mitrovic, Matthias Galster, Sanna Malinen, Jay Holland, Ja'afaru Musa, Negar Mohammadhassan, and Raul Vincent Lumapas. Effectiveness of video-based training for face-to-face communication skills of software engineers: Evidence from a three-year study. *ACM Transactions on Computing Education*, 23 (4):43:1–43:??, December 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3631532`.

Mahadeo:2020:DCI

[MHP20] Jonathan Mahadeo, Zahra Hazari, and Geoff Potvin. Developing a computing identity framework: Understanding computer science and information technology career choice. *ACM Transactions on Computing Education*, 20(1):7:1–7:14, February 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3365571`.

Mitra:2014:UUM

[Mit14] Sandeep Mitra. Using UML modeling to facilitate three-tier architecture projects in software engineering courses. *ACM Transactions on Computing Education*, 14(3):17:1–17:??, November 2014. CODEN ???? ISSN 1946-6226.

Mansour:2023:UIP

[MJB+23] Karla Hamlen Mansour, Debbie K. Jackson, Lisa Bievenue, Adam Voight, and Nigamanth Sridhar. Understanding the impact of peer instruction in CS principles teacher professional development. *ACM Transactions on Computing Education*, 23(2):24:1–24:??, June 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3585077`.

Muldner:2023:RWE

[MJC23] Kasia Muldner, Jay Jennings, and Veronica Chiarelli. A review of worked examples in programming activities. *ACM Transactions on Computing Education*, 23(1):13:1–13:??, March 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3560266`.

McCall:2019:NLN

[MK19] Davin McCall and Michael Kölling. A new look at novice programmer errors. *ACM Transactions on Computing Education*, 19(4):38:1–38:??, November 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3335814`.

Mariani:2012:AAD

[MM12] Leonardo Mariani and Daniela Micucci. AuDeNTES: Automatic detection of teNtative plagiarism according to a rEference solution. *ACM Transactions on Computing Education*, 12(1):2:1–2:??, March 2012. CODEN ???? ISSN 1946-6226.

Margulieux:2020:EIS

[MMFR20] Lauren E. Margulieux, Briana B. Morrison, Baker Franke, and Harivololona Ramilison. Effect of implementing subgoals in `Code.org`'s intro to programming unit in computer science principles. *ACM Transactions on Computing Education*, 20 (4):26:1–26:24, November 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3415594`.

Modesti:2021:SBA

[Mod21] Paolo Modesti. A script-based approach for teaching and assessing Android application development. *ACM Transactions on Computing Education*, 21 (1):7:1–7:24, March 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3427593`.

Mansoor:2024:AEP

[MPDS24] Niloofar Mansoor, Cole S. Peterson, Michael D. Dodd, and Bonita Sharif. Assessing the effect of programming language and task type on eye movements of computer science students. *ACM Transactions on Computing Education*, 24(1): 2:1–2:??, March 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3632530`.

Marshall:2016:EPS

[MPTV16] Linda Marshall, Vreda Pieterse, Lisa Thompson, and Dina M. Venter. Exploration of participation in student software engineering teams. *ACM Transactions on Computing Education*, 16(2):5:1–5:??, March 2016. CODEN ???? ISSN 1946-6226.

McGill:2022:EFI

[MR22] Monica M. McGill and Anni Reinking. Early findings on the

impacts of developing evidence-based practice briefs on middle school computer science teachers. *ACM Transactions on Computing Education*, 22 (4):50:1–50:??, December 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3543512`.

Margolis:2017:SMT

[MRG17] Jane Margolis, Jean Ryoo, and Joanna Goode. Seeing myself through someone else's eyes: The value of in-classroom coaching for computer science teaching and learning. *ACM Transactions on Computing Education*, 17(2):6:1–6:??, June 2017. CODEN ???? ISSN 1946-6226.

Maloney:2010:SPL

[MRR+10] John Maloney, Mitchel Resnick, Natalie Rusk, Brian Silverman, and Evelyn Eastmond. The Scratch programming language and environment. *ACM Transactions on Computing Education*, 10(4):16:1–16:??, November 2010. CODEN ???? ISSN 1946-6226.

Miller:2011:WPD

[MS11] Craig S. Miller and Amber Settle. When practice doesn't make perfect: Effects of task goals on learning computing concepts. *ACM Transactions on Computing Education*, 11 (4):22:1–22:??, November 2011. CODEN ???? ISSN 1946-6226.

Miller:2019:LGL

[MS19] Craig S. Miller and Amber Settle. Learning to get literal: Investigating reference-point difficulties in novice programming. *ACM Transactions on Computing Education*, 19 (3):28:1–28:??, June 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3313291`.

Meerbaum–Salant:2010:ACM

[MSH10] Orni Meerbaum-Salant and Orit Hazzan. An agile constructionist mentoring methodology for software projects in the high school. *ACM Transactions on Computing Education*, 9(4):21:1–21:??, January 2010. CODEN ???? ISSN 1946-6226.

Malmi:2023:DUD

[MSK+23] Lauri Malmi, Judy Sheard, Päivi Kinnunen, Simon, and Jane Sinclair. Development and use of domain-specific learning theories, models, and instruments in computing education. *ACM Transactions on Computing Education*, 23(1): 6:1–6:??, March 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3530221`.

Minnes:2021:WDC

[MSP21] Mia Minnes, Sheena Ghanbari Serslev, and Omar Padilla. What do CS students value in industry internships? *ACM Transactions on Computing Education*, 21(1):4:1–4:15, March

2021. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3427595.

McGill:2023:PPC

[MSV+23] Monica McGill, Eric Snow, Luronne Vaval, Leigh Ann DeLyser, Stephanie Wortel-London, and Angelica Thompson. Practitioner perspectives on COVID-19's impact on computer science education among high schools serving students from lower and higher income families. *ACM Transactions on Computing Education*, 23 (1):12:1–12:??, March 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3557047.

Malmi:2023:ESS

[MT23] Lauri Malmi and Josh Tenenberg. Editorial for the second special issue on "Conceptualizing and Using Theory in Computing Education Research". *ACM Transactions on Computing Education*, 23 (1):1:1–1:??, March 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3570729.

Morales-Trujillo:2021:GSE

[MTGM21] Miguel Ehécatl Morales-Trujillo and Gabriel Alberto García-Mireles. Gamification and SQL: an empirical study on student performance in a database course. *ACM Transactions on Computing Education*, 21(1): 3:1–3:29, March 2021. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3427597.

Mazur:2018:FTF

[MW18] Rebecca Mazur and Rebecca H. Woodland. A fringe topic in a fragile network: How digital literacy and computer science instruction is supported (or not) by teacher ties. *ACM Transactions on Computing Education*, 18(4):22:1–22:??, November 2018. CODEN ???? ISSN 1946-6226.

Michaelis:2022:IDT

[MW22] Joseph E. Michaelis and David Weintrop. Interest development theory in computing education: a framework and toolkit for researchers and designers. *ACM Transactions on Computing Education*, 22(4):43:1–43:??, December 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3487054.

Newton:2023:SCC

[NAG+23] Sunni H. Newton, Meltem Alemdar, Jessica Gale, Diley Hernandez, Doug Edwards, Mike Ryan, Mike Helms, and Marion Usselman. Student-centered computing: Teacher experiences in a new introductory computer science curriculum. *ACM Transactions on Computing Education*, 23 (4):39:1–39:??, December 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3614101.

Ngai:2013:DIM

[NCLN13] Grace Ngai, Stephen C. F. Chan, Hong Va Leong, and Vincent T. Y. Ng. Designing i*CATch: a multipurpose, education-friendly construction kit for physical and wearable computing. *ACM Transactions on Computing Education*, 13 (2):7:1–7:??, June 2013. CODEN ???? ISSN 1946-6226.

Neutens:2022:ACW

[NCW22] Tom Neutens, Kris Coolsaet, and Francis Wyffels. Assessment of code, which aspects do teachers consider and how are they valued? *ACM Transactions on Computing Education*, 22(4):46:1–46:??, December 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3517133`.

Nikula:2011:MGH

[NGK11] Uolevi Nikula, Orlena Gotel, and Jussi Kasurinen. A motivation guided holistic rehabilitation of the first programming course. *ACM Transactions on Computing Education*, 11(4):24:1–24:??, November 2011. CODEN ???? ISSN 1946-6226.

Novak:2019:SCS

[NJK19] Matija Novak, Mike Joy, and Dragutin Kermek. Source-code similarity detection and detection tools used in academia: a systematic review. *ACM Transactions on Computing Education*, 19(3):27:1–27:??, June 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3313290`.

OGrady:2012:PPB

[O'G12] Michael J. O'Grady. Practical problem-based learning in computing education. *ACM Transactions on Computing Education*, 12(3):10:1–10:??, July 2012. CODEN ???? ISSN 1946-6226.

Olivares:2022:DII

[OHR22] Daniel Olivares, Christopher Hundhausen, and Namrata Ray. Designing IDE interventions to promote social interaction and improved programming outcomes in early computing courses. *ACM Transactions on Computing Education*, 22(1):2:1–2:29, March 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3453165`.

Outlay:2017:GIT

[OPC17] Christina N. Outlay, Alana J. Platt, and Kacie Conroy. Getting IT together: a longitudinal look at linking girls' interest in IT careers to lessons taught in middle school camps. *ACM Transactions on Computing Education*, 17(4):20:1–20:??, September 2017. CODEN ???? ISSN 1946-6226.

Ocker:2009:TSW

[ORKH09] Rosalie Ocker, Mary Beth Rosson, Dana Kracaw, and

S. Roxanne Hiltz. Training students to work effectively in partially distributed teams. *ACM Transactions on Computing Education*, 9(1):6:1–6:??, March 2009. CODEN ???? ISSN 1946-6226.

Ott:2016:TPE

[ORS16] Claudia Ott, Anthony Robins, and Kerry Shephard. Translating principles of effective feedback for students into the CS1 context. *ACM Transactions on Computing Education*, 16(1): 1:1–1:??, February 2016. CODEN ???? ISSN 1946-6226.

Oleson:2021:RDK

[OWK21] Alannah Oleson, Brett Wortzman, and Amy J. Ko. On the role of design in K–12 computing education. *ACM Transactions on Computing Education*, 21(1):2:1–2:34, March 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3427594`.

Padiyath:2024:RRU

[Pad24] Aadarsh Padiyath. A realist review of undergraduate student attitudes towards ethical interventions in technical computing courses. *ACM Transactions on Computing Education*, 24 (2):22:1–22:??, May 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3639572`.

Parker:2023:BSO

[Par23] Miranda C. Parker. Barriers and supports to offering computer science in high schools: a case study of structures and agents. *ACM Transactions on Computing Education*, 23(2): 20:1–20:??, June 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3572900`.

Peters:2024:SCE

[PCC+24] Anne-Kathrin Peters, Rafael Capilla, Vlad Constantin Coroama, Rogardt Heldal, Patricia Lago, Ola Leifler, Ana Moreira, João Paulo Fernandes, Birgit Penzenstadler, Jari Porras, and Colin C. Venters. Sustainability in computing education: a systematic literature review. *ACM Transactions on Computing Education*, 24(1):13:1–13:??, March 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3639060`.

Paterson:2009:PPS

[PCH09] J. H. Paterson, K. F. Cheng, and J. Haddow. PatternCoder: a programming support tool for learning binary class associations and design patterns. *ACM Transactions on Computing Education*, 9(3):16:1–16:??, September 2009. CODEN ???? ISSN 1946-6226.

Pereira:2022:SKT

[PD22] Juanan Pereira and Óscar Díaz. Struggling to keep tabs on capstone projects: a chatbot to tackle student procrastination. *ACM Transactions on*

Computing Education, 22(1): 4:1–4:22, March 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3469127.

Park:2015:AHC

[PDF15] Thomas H. Park, Brian Dorn, and Andrea Forte. An analysis of HTML and CSS syntax errors in a Web development course. *ACM Transactions on Computing Education*, 15(1): 4:1–4:??, March 2015. CODEN ???? ISSN 1946-6226.

Pelanek:2023:LCT

[PE23] Radek Pelánek and Tomás Effenberger. The landscape of computational thinking problems for practice and assessment. *ACM Transactions on Computing Education*, 23(2): 22:1–22:??, June 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3578269.

Peters:2019:SEP

[Pet19] Anne-Kathrin Peters. Students' experience of participation in a discipline — a longitudinal study of computer science and IT engineering students. *ACM Transactions on Computing Education*, 19(1): 5:1–5:??, January 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3230011.

Perez:2023:TPB

[PG23] Melissa Perez and Patricia Garcia. Tracing participation beyond computing careers: How women reflect on their experiences in computing programs. *ACM Transactions on Computing Education*, 23(2): 23:1–23:??, June 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3582564.

Pappas:2017:ASB

[PGJS17] Ilias O. Pappas, Michail N. Giannakos, Letizia Jaccheri, and Demetrios G. Sampson. Assessing student behavior in computer science education with an fsQCA approach: The role of gains and barriers. *ACM Transactions on Computing Education*, 17(2):10:1–10:??, June 2017. CODEN ???? ISSN 1946-6226.

Poulsen:2022:PEC

[PHP+22] Seth Poulsen, Geoffrey L. Herman, Peter A. H. Peterson, Enis Golaszewski, Akshita Gorti, Linda Oliva, Travis Scheponik, and Alan T. Sherman. Psychometric evaluation of the cybersecurity concept inventory. *ACM Transactions on Computing Education*, 22(1):6:1–6:18, March 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3451346.

Pena:2021:AHL

[PHRC21] Joslenne Peña, Benjamin V. Hanrahan, Mary Beth Rosson, and Carmen Cole. After-hours learning: Workshops for profes-

sional women to learn Web development. *ACM Transactions on Computing Education*, 21 (2):15:1–15:31, June 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3446964`.

Poor:2012:NUL

[PLB+12] G. Michael Poor, Laura M. Leventhal, Julie Barnes, Duke R. Hutchings, Paul Albee, and Laura Campbell. No user left behind: Including accessibility in student projects and the impact on CS students' attitudes. *ACM Transactions on Computing Education*, 12(2):5:1–5:??, April 2012. CODEN ???? ISSN 1946-6226.

Paiva:2022:AAC

[PLF22] José Carlos Paiva, José Paulo Leal, and Álvaro Figueira. Automated assessment in computer science education: a state-of-the-art review. *ACM Transactions on Computing Education*, 22(3):34:1–34:??, September 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3513140`.

Pears:2009:VOC

[PM09] Arnold Pears and Lauri Malmi. Values and objectives in computing education research. *ACM Transactions on Computing Education*, 9(3):15:1–15:??, September 2009. CODEN ???? ISSN 1946-6226.

Prvan:2020:MTC

[PO20] Marina Prvan and Julije Ozegović. Methods in teaching computer networks: a literature review. *ACM Transactions on Computing Education*, 20(3):19:1–19:35, September 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3394963`.

Phelps:2021:SLS

[PS21] David Phelps and Rafi Santo. Student leadership, systems change: Opportunities and tensions for youth impact on district-wide computer science initiatives. *ACM Transactions on Computing Education*, 21 (4):32:1–32:39, December 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3461716`.

Qian:2017:SMO

[QL17] Yizhou Qian and James Lehman. Students' misconceptions and other difficulties in introductory programming: a literature review. *ACM Transactions on Computing Education*, 18(1): 1:1–1:??, December 2017. CODEN ???? ISSN 1946-6226.

Rahman:2021:REC

[RB21] Farzana Rahman and Elodie Billionniere. Re-entering computing through emerging technology: Current state and special issue introduction. *ACM Transactions on Computing Education*, 21(2):9:1–9:5, June

2021. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3446840.

Riese:2022:QSE

[RB22] Emma Riese and Olle Bälter. A qualitative study of experienced course coordinators' perspectives on assessment in introductory programming courses for Non-CS majors. *ACM Transactions on Computing Education*, 22(4):45:1–45:??, December 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3517134.

Rheingans:2011:RMG

[RBSS11] Penny Rheingans, Anne Brodsky, Jill Scheibler, and Anne Spence. The role of majority groups in diversity programs. *ACM Transactions on Computing Education*, 11(2):11:1–11:??, July 2011. CODEN ???? ISSN 1946-6226.

Renaud:2013:THC

[RC13] Karen Renaud and Quintin Cutts. Teaching human-centered security using non-traditional techniques. *ACM Transactions on Computing Education*, 13(3):11:1–11:??, August 2013. CODEN ???? ISSN 1946-6226.

Rosson:2011:OUT

[RCS11] Mary Beth Rosson, John M. Carroll, and Hansa Sinha. Orientation of undergraduates toward careers in the computer and information sciences: Gender, self-efficacy and social support. *ACM Transactions on Computing Education*, 11(3):14:1–14:??, October 2011. CODEN ???? ISSN 1946-6226.

Ronan:2023:TAB

[REB23] Darcy Ronan, D. Cenk Erdil, and Dennis Brylow. Teacher attitudes & beliefs in computer science (T-ABC): Development & validation of a teacher survey instrument. *ACM Transactions on Computing Education*, 23 (2):18:1–18:??, June 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3569945.

Richard:2019:DPF

[RG19] Gabriela T. Richard and Sagun Giri. Digital and physical fabrication as multimodal learning: Understanding youth computational thinking when making integrated systems through bidirectionally responsive design. *ACM Transactions on Computing Education*, 19(3):17:1–17:??, June 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3243138.

Ross:2020:IBB

[RHSS20] Monique Ross, Zahra Hazari, Gerhard Sonnert, and Philip Sadler. The intersection of being black and being a woman: Examining the effect of social computing relationships on computer science career

choice. *ACM Transactions on Computing Education*, 20 (2):9:1–9:15, May 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3377426`.

Richards:2009:DPB

[Ric09] Debbie Richards. Designing project-based courses with a focus on group formation and assessment. *ACM Transactions on Computing Education*, 9(1): 2:1–2:??, March 2009. CODEN ???? ISSN 1946-6226.

Ritzhaupt:2009:CGD

[Rit09] Albert D. Ritzhaupt. Creating a game development course with limited resources: An evaluation study. *ACM Transactions on Computing Education*, 9(1):3:1–3:??, March 2009. CODEN ???? ISSN 1946-6226.

Renumol:2010:ICP

[RJJ10] V. G. Renumol, Dharanipragada Janakiram, and S. Jayaprakash. Identification of cognitive processes of effective and ineffective students during computer programming. *ACM Transactions on Computing Education*, 10(3):10:1–10:??, August 2010. CODEN ???? ISSN 1946-6226.

Rangel:2020:IMI

[RKM20] Jakeline G. Celis Rangel, Melissa King, and Kasia Muldner. An incremental mindset intervention increases effort during programming activities but not performance. *ACM Transactions on Computing Education*, 20(2):10:1–10:18, May 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3377427`.

Roldan:2022:DCE

[RLN+22] Wendy Roldan, Kung Jin Lee, Kevin Nguyen, Lia Berhe, and Jason Yip. Disrupting computing education: Teen-led participatory design in libraries. *ACM Transactions on Computing Education*, 22(3):26:1–26:??, September 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3484494`.

Ryoo:2021:WHR

[RMM21] Jean J. Ryoo, Alicia Morris, and Jane Margolis. "What Happens to the Raspado man in a Cash-free Society?": Teaching and learning socially responsible computing. *ACM Transactions on Computing Education*, 21(4):31:1–31:28, December 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3453653`.

Russell:2010:MPB

[RMNC10] Ingrid Russell, Zdravko Markov, Todd Neller, and Susan Coleman. MLeXAI: a project-based application-oriented model. *ACM Transactions on Computing Education*, 10(3):11:1–11:??, August 2010. CODEN ???? ISSN 1946-6226.

Robins:2022:DPT

[Rob22] Anthony V. Robins. Dual process theories: Computing cognition in context. *ACM Transactions on Computing Education*, 22(4):41:1–41:??, December 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3487055.

Ross:2023:LCH

[Ros23] Monique S. Ross. Let's have that conversation: How limited epistemological beliefs exacerbates inequities and will continue to be a barrier to broadening participation. *ACM Transactions on Computing Education*, 23(2):17:1–17:??, June 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3578270.

Rucker:2019:HES

[RP19] Michael T. Rücker and Niels Pinkwart. "How Else Should It Work?" A grounded theory of pre-college students' understanding of computing devices. *ACM Transactions on Computing Education*, 19(1):2:1–2:??, January 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3226592.

Rodrigues:2022:TLP

[RPT+22] Luiz Rodrigues, Filipe Pereira, Armando Toda, Paula Palomino, Wilk Oliveira, Marcela Pessoa, Leandro Carvalho, David Oliveira, Elaine Oliveira, Alexandra Cristea, and Seiji Isotani. Are they learning or playing? Moderator conditions of gamification's success in programming classrooms. *ACM Transactions on Computing Education*, 22(3):30:1–30:??, September 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3485732.

Rabkin:2013:UCM

[RRKP13] Ariel Rabkin, Charles Reiss, Randy Katz, and David Patterson. Using clouds for MapReduce measurement assignments. *ACM Transactions on Computing Education*, 13(1):2:1–2:??, January 2013. CODEN ???? ISSN 1946-6226.

Rolandsson:2014:PSL

[RS14] Lennart Rolandsson and Inga-Britt Skogh. Programming in school: Look back to move forward. *ACM Transactions on Computing Education*, 14(2):12:1–12:??, June 2014. CODEN ???? ISSN 1946-6226.

Ryoo:2022:ISI

[RSL22] Jean J. Ryoo, Rafi Santo, and Michael Lachney. Introduction to the special issue on justice-centered computing education, Part 2. *ACM Transactions on Computing Education*, 22(3):23:1–23:??, September 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3530982.

Ravitz:2017:ELE

[RSPB17] Jason Ravitz, Chris Stephenson, Karen Parker, and Juliane Blazevski. Early lessons from evaluation of computer science teacher professional development in Google's CS4HS program. *ACM Transactions on Computing Education*, 17(4): 21:1–21:??, September 2017. CODEN ???? ISSN 1946-6226.

Reardon:2015:SSB

[RT15] Susan Reardon and Brendan Tangney. Smartphones, studio-based learning, and scaffolding: Helping novices learn to program. *ACM Transactions on Computing Education*, 14 (4):23:1–23:??, February 2015. CODEN ???? ISSN 1946-6226.

Rankin:2021:BWS

[RTE21] Yolanda A. Rankin, Jakita O. Thomas, and Sheena Erete. Black women speak: Examining power, privilege, and identity in CS education. *ACM Transactions on Computing Education*, 21(4):26:1–26:31, December 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3451344`.

Rossling:2009:VBC

[RV09] Guido Rössling and Teena Vellaramkalayil. A visualization-based computer science hypertextbook prototype. *ACM Transactions on Computing Education*, 9(2):11:1–11:??, June 2009. CODEN ???? ISSN 1946-6226.

Raman:2015:CSC

[RVAN15] Raghu Raman, Smrithi Venkatasubramanian, Krishnashree Achuthan, and Prema Nedungadi. Computer science (CS) education in Indian schools: Situation analysis using Darmstadt model. *ACM Transactions on Computing Education*, 15(2):7:1–7:??, May 2015. CODEN ???? ISSN 1946-6226.

Rossling:2009:EPA

[RVI09] Guido Rössling and J. Ángel Velázquez-Iturbide. Editorial: Program and algorithm visualization in education. *ACM Transactions on Computing Education*, 9(2):8:1–8:??, June 2009. CODEN ???? ISSN 1946-6226.

Rucker:2020:SPL

[RvJP20] Michael T. Rücker, Wouter R. van Joolingen, and Niels Pinkwart. Small but powerful: a learning study to address secondary students' conceptions of everyday computing technology. *ACM Transactions on Computing Education*, 20 (2):11:1–11:27, May 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3377880`.

Rachmatullah:2023:CCV

[RVSW23] Arif Rachmatullah, Jessica Vandenberg, Sein Shin, and Eric Wiebe. Cross-country variation in (binary) gender dif-

ferences in secondary school students' CS attitudes: Revalidating and generalizing a CS attitudes scale. *ACM Transactions on Computing Education*, 23(4):42:1–42:??, December 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3630014`.

Repenning:2015:SGD

[RWK+15] Alexander Repenning, David C. Webb, Kyu Han Koh, Hilarie Nickerson, Susan B. Miller, Catharine Brand, Ian Her Many Horses, Ashok Basawapatna, Fred Gluck, Ryan Grover, Kris Gutierrez, and Nadia Repenning. Scalable game design: a strategy to bring systemic computer science education to schools through game design and simulation creation. *ACM Transactions on Computing Education*, 15(2):11:1–11:??, May 2015. CODEN ???? ISSN 1946-6226.

Richards:2024:BBE

[RWS+24] Mike Richards, Kevin Waugh, Mark Slaymaker, Marian Petre, John Woodthorpe, and Daniel Gooch. Bob or bot: Exploring ChatGPT's answers to university computer science assessment. *ACM Transactions on Computing Education*, 24 (1):5:1–5:??, March 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3633287`.

Ryoo:2019:PSC

[Ryo19] Jean J. Ryoo. Pedagogy that supports computer science for all. *ACM Transactions on Computing Education*, 19(4): 36:1–36:??, November 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3322210`.

Statter:2020:TAC

[SA20] David Statter and Michal Armoni. Teaching abstraction in computer science to 7th grade students. *ACM Transactions on Computing Education*, 20 (1):8:1–8:37, February 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3372143`.

Seo:2021:ITE

[SAyC+21] Hyunjin Seo, Darcey Altschwager, Baek young Choi, Sejun Song, Hannah Britton, Megha Ramaswamy, Bernard Schuster, Marilyn Ault, Kaushik Ayinala, Rafida Zaman, Ben Tihen, and Lohitha Yenugu. Informal technology education for women transitioning from incarceration. *ACM Transactions on Computing Education*, 21 (2):16:1–16:16, June 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3425711`.

Steghofer:2018:IES

[SBH+18] Jan-Philipp Steghöfer, Håkan Burden, Regina Hebig, Gul Calikli, Robert Feldt, Imed Hammouda, Jennifer Horkoff, Eric

Knauss, and Grischa Liebel. Involving external stakeholders in project courses. *ACM Transactions on Computing Education*, 18(2):8:1–8:??, July 2018. CODEN ???? ISSN 1946-6226.

Shaffer:2010:AVS

[SCA+10] Clifforda Shaffer, Matthew L. Cooper, Alexander Joel D. Alon, Monika Akbar, Michael Stewart, Sean Ponce, and Stephen H. Edwards. Algorithm visualization: The state of the field. *ACM Transactions on Computing Education*, 10 (3):9:1–9:??, August 2010. CODEN ???? ISSN 1946-6226.

Sanchez:2019:ICP

[SDBJ19] Ana Sánchez, César Domínguez, Jose Miguel Blanco, and Arturo Jaime. Incorporating computing professionals' know-how: Differences between assessment by students, academics, and professional experts. *ACM Transactions on Computing Education*, 19(3): 26:1–26:??, June 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3309157`.

Shapiro:2019:ISS

[SF19] R. Benjamin Shapiro and Rebecca Fiebrink. Introduction to the special section: Launching an agenda for research on learning machine learning. *ACM Transactions on Computing Education*, 19(4):30:1–30:??, November 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3354136`.

Sablis:2019:BLT

[SGHZS19] Aivars Sablis, Javier Gonzalez-Huerta, Ehsan Zabardast, and Darja Smite. Building LEGO towers: an exercise for teaching the challenges of global work. *ACM Transactions on Computing Education*, 19(2):15:1–15:??, February 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3218249`.

Shoufan:2010:CRP

[SH10] Abdulhadi Shoufan and Sorin A. Huss. A course on reconfigurable processors. *ACM Transactions on Computing Education*, 10(2):7:1–7:??, June 2010. CODEN ???? ISSN 1946-6226.

Saltz:2018:SMG

[SH18a] Jeffrey S. Saltz and Robert R. Heckman. A scalable methodology to guide student teams executing computing projects. *ACM Transactions on Computing Education*, 18(2):9:1–9:??, July 2018. CODEN ???? ISSN 1946-6226.

Sherriff:2018:CLP

[SH18b] Mark Sherriff and Sarah Heckman. Capstones and large projects in computing education. *ACM Transactions on Computing Education*, 18(2): 6:1–6:??, July 2018. CODEN ???? ISSN 1946-6226.

Sharmin:2022:CCL

[Sha22] Sadia Sharmin. Creativity in CS1: a literature review. *ACM Transactions on Computing Education*, 22(2):16:1–16:26, June 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3459995`.

Shesh:2013:TSU

[She13] Amit Shesh. Toward a singleton undergraduate computer graphics course in small and medium-sized colleges. *ACM Transactions on Computing Education*, 13(4):17:1–17:??, November 2013. CODEN ???? ISSN 1946-6226.

Shin:2016:EMD

[Shi16] Shin-Shing Shin. Evaluation of model driven architecture-based instruction for understanding phase transitions in object-oriented analysis and design. *ACM Transactions on Computing Education*, 16(4):17:1–17:??, October 2016. CODEN ???? ISSN 1946-6226.

Shoufan:2023:CSP

[Sho23] Abdulhadi Shoufan. Can students without prior knowledge use ChatGPT to answer test questions? An empirical study. *ACM Transactions on Computing Education*, 23(4):45:1–45:??, December 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3628162`.

Shin:2024:MHS

[SK24] Austin M. Shin and Ayaan M. Kazerouni. A model of how students engineer test cases with feedback. *ACM Transactions on Computing Education*, 24(1):1:1–1:??, March 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3628604`.

Sorva:2013:RGP

[SKM13] Juha Sorva, Ville Karavirta, and Lauri Malmi. A review of generic program visualization systems for introductory programming education. *ACM Transactions on Computing Education*, 13(4):15:1–15:??, November 2013. CODEN ???? ISSN 1946-6226.

Silva:2024:WLS

[SMGF24] Leonardo Silva, António Mendes, Anabela Gomes, and Gabriel Fortes. What learning strategies are used by programming students? A qualitative study grounded on the self-regulation of learning theory. *ACM Transactions on Computing Education*, 24(1):9:1–9:??, March 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3635720`.

Sax:2022:CCD

[SNG+22] Linda J. Sax, Kaitlin N. S. Newhouse, Joanna Goode, Tomoko M. Nakajima, Max Skorodinsky, and Michelle Sendowski. Can computing be diversified on "principles"

alone? Exploring the role of AP computer science courses in students' major and career intentions. *ACM Transactions on Computing Education*, 22(2):18:1–18:26, June 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3479431`.

Saqr:2021:PIM

[SNOT21] Mohammed Saqr, Kwok Ng, Solomon Sunday Oyelere, and Matti Tedre. People, ideas, milestones: a scientometric study of computational thinking. *ACM Transactions on Computing Education*, 21(3): 20:1–20:17, July 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3445984`.

Sirocchi:2024:IPM

[SOB24] Christel Sirocchi, Annika Pofantis Ostergren, and Alessandro Bogliolo. Investigating participation mechanisms in EU Code Week. *ACM Transactions on Computing Education*, 24 (1):4:1–4:??, March 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3632531`.

Sorva:2013:NMI

[Sor13] Juha Sorva. Notional machines and introductory programming education. *ACM Transactions on Computing Education*, 13 (2):8:1–8:??, June 2013. CODEN ???? ISSN 1946-6226.

Sulmont:2019:WHA

[SPC19] Elisabeth Sulmont, Elizabeth Patitsas, and Jeremy R. Cooperstock. What is hard about teaching machine learning to non-majors? Insights from classifying instructors' learning goals. *ACM Transactions on Computing Education*, 19 (4):33:1–33:??, November 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3336124`.

Sondag:2012:FTU

[SPR12] Tyler Sondag, Kian L. Pokorny, and Hridesh Rajan. Frances: a tool for understanding computer architecture and assembly language. *ACM Transactions on Computing Education*, 12(4):14:1–14:??, November 2012. CODEN ???? ISSN 1946-6226.

Stefik:2013:EIP

[SS13] Andreas Stefik and Susanna Siebert. An empirical investigation into programming language syntax. *ACM Transactions on Computing Education*, 13(4):19:1–19:??, November 2013. CODEN ???? ISSN 1946-6226.

Szabo:2023:LTU

[SS23] Claudia Szabo and Judy Sheard. Learning theories use and relationships in computing education research. *ACM Transactions on Computing Education*, 23(1):5:1–5:??, March 2023. CODEN ????

ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3487056.

Soyka:2023:TCM

[SSB+23] Chantal Soyka, Niclas Schaper, Elena Bender, Michael Striewe, and Meike Ullrich. Toward a competence model for graphical modeling. *ACM Transactions on Computing Education*, 23(1):15:1–15:??, March 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3567598.

Schaeckeler:2009:COP

[SSD09] Stefan Schaeckeler, Weijia Shang, and Ruth Davis. Compiler optimization pass visualization: The procedural abstraction case. *ACM Transactions on Computing Education*, 9(2):14:1–14:??, June 2009. CODEN ???? ISSN 1946-6226.

Saltz:2019:IEW

[SSF+19] Jeffrey Saltz, Michael Skirpan, Casey Fiesler, Micha Gorelick, Tom Yeh, Robert Heckman, Neil Dewar, and Nathan Beard. Integrating ethics within machine learning courses. *ACM Transactions on Computing Education*, 19 (4):32:1–32:??, November 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3341164.

Sentance:2018:CBR

[SSSC18] Sue Sentance, Jane Sinclair, Carl Simmons, and Andrew Csizmadia. Classroom-based research projects for computing teachers: Facilitating professional learning. *ACM Transactions on Computing Education*, 18(3):14:1–14:??, September 2018. CODEN ???? ISSN 1946-6226.

Stepanova:2022:HCG

[SWL+22] Anna Stepanova, Alexis Weaver, Joanna Lahey, Gerianne Alexander, and Tracy Hammond. Hiring CS graduates: What we learned from employers. *ACM Transactions on Computing Education*, 22(1):5:1–5:20, March 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3474623.

Santo:2024:TFO

[SYP24] Rafi Santo, Aman Yadav, and David Phelps. Their fight is our fight: Why computing education advocates must be in solidarity with public schools. *ACM Transactions on Computing Education*, 24(1): 14:1–14:??, March 2024. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3632296.

Taub:2012:CUM

[TABA12] Rivka Taub, Michal Armoni, and Mordechai Ben-Ari. CS unplugged and middle-school students' views, attitudes, and intentions regarding CS. *ACM Transactions on Computing Education*, 12(2):8:1–8:??,

April 2012. CODEN ???? ISSN 1946-6226.

Tagare:2024:FPK

[Tag24] Deepti Tagare. Factors that predict K–12 teachers' ability to apply computational thinking skills. *ACM Transactions on Computing Education*, 24 (1):3:1–3:??, March 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3633205`.

Theodoropoulos:2017:HDD

[TAL17] Anastasios Theodoropoulos, Angeliki Antoniou, and George Lepouras. How do different cognitive styles affect learning programming? Insights from a game-based approach in Greek schools. *ACM Transactions on Computing Education*, 17(1): 3:1–3:??, January 2017. CODEN ???? ISSN 1946-6226.

Thota:2016:LCS

[TB16] Neena Thota and Anders Berglund. Learning computer science: Dimensions of variation within what Chinese students learn. *ACM Transactions on Computing Education*, 16 (3):10:1–10:??, June 2016. CODEN ???? ISSN 1946-6226.

Thomas:2024:ISI

[TBB24] Jakita O. Thomas, Quincy K. Brown, and Jamika Burge. Introduction to the special issue on situating the intersectional experiences of black girls and women in computing & technology. *ACM Transactions on Computing Education*, 24 (2):15:1–15:??, May 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3648478`.

Tang:2021:PPC

[TBP21] Ying Tang, Morgan L. Brockman, and Sameer Patil. Promoting privacy considerations in real-world projects in capstone courses with ideation cards. *ACM Transactions on Computing Education*, 21 (4):34:1–34:28, December 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3458038`.

Tenenberg:2019:SGC

[TC19] Josh Tenenberg and Donald Chinn. Social genesis in computing education. *ACM Transactions on Computing Education*, 19(4):34:1–34:??, November 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3322211`.

Thayer:2021:TRA

[TCK21] Kyle Thayer, Sarah E. Chasins, and Amy J. Ko. A theory of robust API knowledge. *ACM Transactions on Computing Education*, 21(1):8:1–8:32, March 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3444945`.

Tseng:2024:CMC

[TDMN+24] Tiffany Tseng, Matt J. Davidson, Luis Morales-Navarro,

Jennifer King Chen, Victoria Delaney, Mark Leibowitz, Jazbo Beason, and R. Benjamin Shapiro. Co-ML: Collaborative machine learning model building for developing dataset design practices. *ACM Transactions on Computing Education*, 24(2):25:1–25:??, May 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3641552`.

Tenenberg:2014:ARQ

[Ten14] Josh Tenenberg. Asking research questions: Theoretical presuppositions. *ACM Transactions on Computing Education*, 14(3):16:1–16:??, November 2014. CODEN ???? ISSN 1946-6226.

Tenenberg:2023:CRT

[Ten23] Josh Tenenberg. Conceptualizing the researcher-theory relation. *ACM Transactions on Computing Education*, 23(1):3:1–3:??, March 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3570730`.

Taylor:2016:SII

[TK16] Blair Taylor and Siddharth Kaza. Security injections@towson: Integrating secure coding into introductory computer science courses. *ACM Transactions on Computing Education*, 16(4):16:1–16:??, October 2016. CODEN ???? ISSN 1946-6226.

Tenenberg:2009:IAT

[TM09] Josh Tenenberg and Robert McCartney. Introducing the ACM Transactions on Computing Education. *ACM Transactions on Computing Education*, 9(1):1:1–1:??, March 2009. CODEN ???? ISSN 1946-6226.

Tenenberg:2010:WDM

[TM10] Josh Tenenberg and Robert McCartney. Why discipline matters in computing education scholarship. *ACM Transactions on Computing Education*, 9(4):18:1–18:??, January 2010. CODEN ???? ISSN 1946-6226.

Tenenberg:2011:ECT

[TM11a] Josh Tenenberg and Robert McCartney. Editorial: Computational tools for computing education. *ACM Transactions on Computing Education*, 11(4):21:1–21:??, November 2011. CODEN ???? ISSN 1946-6226.

Tenenberg:2011:EEP

[TM11b] Josh Tenenberg and Robert McCartney. Editorial: Entry points for computing education research. *ACM Transactions on Computing Education*, 11(1):1:1–1:??, February 2011. CODEN ???? ISSN 1946-6226. URL `http://portal.acm.org/citation.cfm?id=1921608`.

Tenenberg:2014:ECE

[TM14] Josh Tenenberg and Robert McCartney. Editorial: Computing education in (K–12)

schools from a cross-national perspective. *ACM Transactions on Computing Education*, 14 (2):6:1–6:??, June 2014. CODEN ???? ISSN 1946-6226.

Tenenberg:2015:LBL

[TM15] Josh Tenenberg and Robert McCartney. Looking backward to look forward: TOCE in transition. *ACM Transactions on Computing Education*, 15(3):12:1–12:??, September 2015. CODEN ???? ISSN 1946-6226.

Tenenberg:2022:ECU

[TM22] Josh Tenenberg and Lauri Malmi. Editorial: Conceptualizing and using theory in computing education research. *ACM Transactions on Computing Education*, 22(4):38:1–38:??, December 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3542952`.

Tena-Meza:2022:CPL

[TMSA22] Stephanie Tena-Meza, Miroslav Suzara, and Aj Alvero. Coding with purpose: Learning AI in rural California. *ACM Transactions on Computing Education*, 22(3):24:1–24:??, September 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3513137`.

Tedre:2023:GTD

[TP23] Matti Tedre and John Pajunen. Grand theories or design guidelines? Perspectives on the role of theory in computing education research. *ACM Transactions on Computing Education*, 23(1):4:1–4:??, March 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3487049`.

Turner:2018:PRC

[TPQE18] Scott Alexander Turner, Manuel A. Pérez-Quiñones, and Stephen H. Edwards. Peer review in CS2: Conceptual learning and high-level thinking. *ACM Transactions on Computing Education*, 18(3):13:1–13:??, September 2018. CODEN ???? ISSN 1946-6226.

Taipalus:2020:SES

[TS20] Toni Taipalus and Ville Seppänen. SQL education: a systematic mapping study and future research agenda. *ACM Transactions on Computing Education*, 20(3):20:1–20:33, September 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3398377`.

Tshukudu:2023:IKC

[TSAA+23] Ethel Tshukudu, Sue Sentance, Oluwatoyin Adelakun-Adeyemo, Brenda Nyaringita, Keith Quille, and Ziling Zhong. Investigating K–12 computing education in four African countries (Botswana, Kenya, Nigeria, and Uganda). *ACM Transactions on Computing Education*, 23(1):9:1–9:??, March 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3554924`.

Talon:2012:DCI

[TSK12] Bénédicte Talon, Mouldi Sagar, and Christophe Kolski. Developing competence in interactive systems: The GRASP tool for the design or redesign of pedagogical ICT devices. *ACM Transactions on Computing Education*, 12(3):9:1–9:??, July 2012. CODEN ???? ISSN 1946-6226.

Taipalus:2018:ECS

[TSV18] Toni Taipalus, Mikko Siponen, and Tero Vartiainen. Errors and complications in SQL query formulation. *ACM Transactions on Computing Education*, 18(3):15:1–15:??, September 2018. CODEN ???? ISSN 1946-6226.

Tomkin:2018:IGP

[TWH18] Jonathan H. Tomkin, Matthew West, and Geoffrey L. Herman. An improved grade point average, with applications to CS undergraduate education analytics. *ACM Transactions on Computing Education*, 18 (4):17:1–17:??, November 2018. CODEN ???? ISSN 1946-6226.

Utting:2010:AGS

[UCK+10] Ian Utting, Stephen Cooper, Michael Kölling, John Maloney, and Mitchel Resnick. Alice, Greenfoot, and Scratch — a discussion. *ACM Transactions on Computing Education*, 10 (4):17:1–17:??, November 2010. CODEN ???? ISSN 1946-6226.

Urquiza-Fuentes:2009:SSE

[UFVI09] Jaime Urquiza-Fuentes and J. Ángel Velázquez-Iturbide. A survey of successful evaluations of program visualization and algorithm animation systems. *ACM Transactions on Computing Education*, 9(2):9:1–9:??, June 2009. CODEN ???? ISSN 1946-6226.

Umapathy:2017:MAP

[UR17] Karthikeyan Umapathy and Albert D. Ritzhaupt. A meta-analysis of pair-programming in computer programming courses: Implications for educational practice. *ACM Transactions on Computing Education*, 17(4):16:1–16:??, September 2017. CODEN ???? ISSN 1946-6226.

Vasquez:2023:VSL

[VCMV23] Francisco Vásquez, Juan Felipe Calderón, Federico Meza, and Andrea Vásquez. Validation of a Spanish-language version of a computer programming aptitude test for first-year university students. *ACM Transactions on Computing Education*, 23(2):21:1–21:??, June 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3579365`.

vanderMeulen:2023:PTU

[vdMHVH23] Anna van der Meulen, Mijke Hartendorp, Wendy Voorn, and Felienne Hermans. The perception of teachers on usability and accessibility of programming

materials for children with visual impairments. *ACM Transactions on Computing Education*, 23(1):14:1–14:??, March 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3561391.

Vivian:2016:MAC

[VFFT16] Rebecca Vivian, Katrina Falkner, Nickolas Falkner, and Hamid Tarmazdi. A method to analyze computer science students' teamwork in online collaborative learning environments. *ACM Transactions on Computing Education*, 16(2):7:1–7:??, March 2016. CODEN ???? ISSN 1946-6226.

Vizcaino:2023:GMS

[VGM+23] Aurora Vizcaíno, Félix O. García, Víctor Hugo Menéndez, Antonio Manjavacas, Rubén Márquez, and Marta Molina. Global manager: a serious game to raise awareness of the challenges of being a project manager in global software development. *ACM Transactions on Computing Education*, 23(2):30:1–30:??, June 2023. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3592620.

Vizcaino:2019:EGA

[VGRM19] Aurora Vizcaíno, Félix García, Ignacio García Rodriguez De Guzmán, and M. Ángeles Moraga. Evaluating GSD-Aware: a serious game for discovering global software development challenges. *ACM Transactions on Computing Education*, 19 (2):14:1–14:??, February 2019. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/ft_gateway.cfm?id=3218279.

Velazquez-Iturbide:2013:EMA

[VI13] J. Ángel Velázquez-Iturbide. An experimental method for the active learning of greedy algorithms. *ACM Transactions on Computing Education*, 13 (4):18:1–18:??, November 2013. CODEN ???? ISSN 1946-6226.

Vesin:2022:AAC

[VMAG22] Boban Vesin, Katerina Mangaroska, Kamil Akhuseyinoglu, and Michail Giannakos. Adaptive assessment and content recommendation in online programming courses: On the use of elo-rating. *ACM Transactions on Computing Education*, 22(3):33:1–33:??, September 2022. CODEN ???? ISSN 1946-6226. URL https://dl.acm.org/doi/10.1145/3511886.

Vieira:2017:WCC

[VMFG17] Camilo Vieira, Alejandra J. Magana, Michael L. Falk, and R. Edwin Garcia. Writing in-code comments to self-explain in computational science and engineering education. *ACM Transactions on Computing Education*, 17(4):17:1–17:??, September 2017. CODEN ???? ISSN 1946-6226.

Vogel:2021:PDP

[Vog21] Sara Vogel. "Los Programadores Debieron Pensarse Como Dos Veces": Exploring the intersections of language, power, and technology with bi/multilingual students. *ACM Transactions on Computing Education*, 21(4): 28:1–28:25, December 2021. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3447379`.

Veeragoudar:2022:EBC

[VS22] Sneha Veeragoudar and Florence R. Sullivan. Equity-based CS case study: an approach to exploring white teachers' conceptions of race and racism in a professional development setting. *ACM Transactions on Computing Education*, 22(3): 28:1–28:??, September 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3487332`.

Vrieler:2022:SPC

[VSK22] Tina Vrieler and Minna Salminen-Karlsson. A sociocultural perspective on computer science capital and its pedagogical implications in computer science education. *ACM Transactions on Computing Education*, 22 (4):44:1–44:??, December 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3487052`.

Vandenberg:2020:ESU

[VTB+20] Jessica Vandenberg, Jennifer Tsan, Danielle Boulden, Zarifa Zakaria, Collin Lynch, Kristy Elizabeth Boyer, and Eric Wiebe. Elementary students' understanding of CS terms. *ACM Transactions on Computing Education*, 20(3):17:1–17:19, September 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3386364`.

Wagner:2016:GPC

[Wag16] Isabel Wagner. Gender and performance in computer science. *ACM Transactions on Computing Education*, 16(3):11:1–11:??, June 2016. CODEN ???? ISSN 1946-6226.

Wang:2011:EEU

[Wan11] Alf Inge Wang. Extensive evaluation of using a game project in a software architecture course. *ACM Transactions on Computing Education*, 11(1):5:1–5:??, February 2011. CODEN ???? ISSN 1946-6226.

Wiegand:2022:IIE

[WBK+22] R. Paul Wiegand, Anthony Bucci, Amruth N. Kumar, Jennifer Albert, and Alessio Gaspar. Identifying informatively easy and informatively hard concepts. *ACM Transactions on Computing Education*, 22 (1):7:1–7:28, March 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3477968`.

Weintrop:2020:TAE

[WCPF20] David Weintrop, Merijke Coenraad, Jen Palmer, and Diana Franklin. The teacher accessibility, equity, and content (TEC) rubric for evaluating computing curricula. *ACM Transactions on Computing Education*, 20(1):5:1–5:30, February 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3371155`.

Werner:2015:CPG

[WDC15] Linda Werner, Jill Denner, and Shannon Campe. Children programming games: a strategy for measuring computational learning. *ACM Transactions on Computing Education*, 14 (4):24:1–24:??, February 2015. CODEN ???? ISSN 1946-6226.

Williams:2024:CEF

[WDC+24] Krystal L. Williams, Edward Dillon, Shanice Carter, Janelle Jones, and Shelly Melchior. CS=Me: Exploring factors that shape black Women's CS identity at the intersections of race and gender. *ACM Transactions on Computing Education*, 24 (2):21:1–21:??, May 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3631715`.

Werner:2020:CSG

[WDCT20] Linda Werner, Jill Denner, Shannon Campe, and David M. Torres. Computational sophistication of games programmed by children: a model for its measurement. *ACM Transactions on Computing Education*, 20(2):12:1–12:23, May 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3379351`.

Weston:2020:PWP

[WDK20] Timothy J. Weston, Wendy M. Dubow, and Alexis Kaminsky. Predicting women's persistence in computer science- and technology-related majors from high school to college. *ACM Transactions on Computing Education*, 20(1):1:1–1:16, February 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/abs/10.1145/3343195`.

Willis:2024:EBU

[WF24] Danyelle Tauryce Willis and Kimberley Edelin Freeman. An examination of black undergraduate Women's intersectional experiences and academic motivation in computing education. *ACM Transactions on Computing Education*, 24(2):18:1–18:??, May 2024. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3635314`.

Witherspoon:2017:DCT

[WHS+17] Eben B. Witherspoon, Ross M. Higashi, Christian D. Schunn, Emily C. Baehr, and Robin Shoop. Developing computational thinking through a virtual robotics programming curriculum. *ACM Transactions on*

Computing Education, 18(1): 4:1–4:??, December 2017. CODEN ???? ISSN 1946-6226.

Walker:2010:CSL

[WK10] Henry M. Walker and Charles Kelemen. Computer science and the liberal arts: a philosophical examination. *ACM Transactions on Computing Education*, 10(1):2:1–2:??, March 2010. CODEN ???? ISSN 1946-6226.

Whalley:2023:TAS

[WSLR23] Jacqueline Whalley, Amber Settle, and Andrew Luxton-Reilly. A think-aloud study of novice debugging. *ACM Transactions on Computing Education*, 23(2):28:1–28:??, June 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3589004`.

Wolz:2011:CTE

[WSP+11] Ursula Wolz, Meredith Stone, Kim Pearson, Sarah Monisha Pulimood, and Mary Switzer. Computational thinking and expository writing in the middle school. *ACM Transactions on Computing Education*, 11 (2):9:1–9:??, July 2011. CODEN ???? ISSN 1946-6226.

Weintrop:2017:CBB

[WW17] David Weintrop and Uri Wilensky. Comparing block-based and text-based programming in high school computer science classrooms. *ACM Transactions on Computing Education*, 18(1):3:1–3:??, December 2017. CODEN ???? ISSN 1946-6226.

Wainer:2018:CEP

[WX18] Jacques Wainer and Eduardo C. Xavier. A controlled experiment on Python vs C for an introductory programming course: Students' outcomes. *ACM Transactions on Computing Education*, 18(3):12:1–12:??, September 2018. CODEN ???? ISSN 1946-6226.

Webb:2022:SPB

[WZL+22] Kevin C. Webb, Daniel Zingaro, Soohyun Nam Liao, Cynthia Taylor, Cynthia Lee, Michael Clancy, and Leo Porter. Student performance on the BDSI for basic data structures. *ACM Transactions on Computing Education*, 22(1):8:1–8:34, March 2022. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3470654`.

Xinogalos:2015:OOD

[Xin15] Stelios Xinogalos. Object-oriented design and programming: an investigation of novices' conceptions on objects and classes. *ACM Transactions on Computing Education*, 15(3):13:1–13:??, September 2015. CODEN ???? ISSN 1946-6226.

Yadav:2019:CSP

[YB19] Aman Yadav and Marc Berges. Computer science pedagogical content knowledge: Characterizing teacher performance.

ACM Transactions on Computing Education, 19(3):29:1–29:??, June 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3303770`.

Yamamoto:2023:CSL

[YBV23] Fujiko Robledo Yamamoto, Lecia Barker, and Amy Voida. CISing up service learning: a systematic review of service learning experiences in computer and information science. *ACM Transactions on Computing Education*, 23(3):37:1–37:??, September 2023. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3610776`.

Yadav:2014:CTE

[YMZ+14] Aman Yadav, Chris Mayfield, Ninger Zhou, Susanne Hambrusch, and John T. Korb. Computational thinking in elementary and secondary teacher education. *ACM Transactions on Computing Education*, 14 (1):5:1–5:??, March 2014. CODEN ???? ISSN 1946-6226.

Yuen:2015:QSS

[YR15] Timothy T. Yuen and Kay A. Robbins. A qualitative study of students' computational thinking skills in a data-driven computing class. *ACM Transactions on Computing Education*, 14(4):27:1–27:??, February 2015. CODEN ???? ISSN 1946-6226.

Yuan:2010:VTT

[YVQ+10] Xiaohong Yuan, Percy Vega, Yaseen Qadah, Ricky Archer, Huiming Yu, and Jinsheng Xu. Visualization tools for teaching computer security. *ACM Transactions on Computing Education*, 9(4):20:1–20:??, January 2010. CODEN ???? ISSN 1946-6226.

Yeomans:2019:TTS

[YZC19] Lucy Yeomans, Steffen Zschaler, and Kelly Coate. Transformative and troublesome? Students' and professional programmers' perspectives on difficult concepts in programming. *ACM Transactions on Computing Education*, 19(3): 23:1–23:??, June 2019. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/ft_gateway.cfm?id=3283071`.

Zhou:2020:TPE

[ZCJR20] Ninger Zhou, Yucheng Cao, Sharin Jacob, and Debra Richardson. Teacher perceptions of equity in high school computer science classrooms. *ACM Transactions on Computing Education*, 20(3):24:1–24:27, September 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3410633`.

Zhang:2015:IEF

[ZD15] Yulei (Gavin) Zhang and Yan (Mandy) Dang. Investigating essential factors on students' perceived accomplish-

ment and enjoyment and intention to learn in Web development. *ACM Transactions on Computing Education*, 15(1): 3:1–3:??, March 2015. CODEN ???? ISSN 1946-6226.

Zingaro:2015:EIG

[Zin15] Daniel Zingaro. Examining interest and grades in Computer Science 1: a study of pedagogy and achievement goals. *ACM Transactions on Computing Education*, 15(3):14:1–14:??, September 2015. CODEN ???? ISSN 1946-6226.

Zimmerman:2011:WLH

[ZJWF11] Thomas G. Zimmerman, David Johnson, Cynthia Wambsgans, and Antonio Fuentes. Why Latino high school students select computer science as a major: Analysis of a success story. *ACM Transactions on Computing Education*, 11(2):10:1–10:??, July 2011. CODEN ???? ISSN 1946-6226.

Zhou:2020:HST

[ZNF+20] Ninger Zhou, Ha Nguyen, Christian Fischer, Debra Richardson, and Mark Warschauer. High school teachers' self-efficacy in teaching computer science. *ACM Transactions on Computing Education*, 20(3): 23:1–23:18, September 2020. CODEN ???? ISSN 1946-6226. URL `https://dl.acm.org/doi/10.1145/3410631`.

Ziwisky:2013:EEO

[ZPB13] Michael Ziwisky, Kyle Persohn, and Dennis Brylow. A down-to-earth educational operating system for up-in-the-cloud many-core architectures. *ACM Transactions on Computing Education*, 13(1):4:1–4:??, January 2013. CODEN ???? ISSN 1946-6226.