DREAM: Educating Future App Developers with a Child Rights Approach

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Abstract

Existing research on children's digital content has predominantly examined apps from the perspective of young users, parents, and industry stakeholders [1]. These studies identify criteria for "good" apps—safety, educational value, user experience—but overlook a fundamental question: *who do develop these apps, and how are they trained*? This poster presents DREAM (Digital Resilience, Education, and Awareness for Minors), a 24-month EU CERV project addressing this gap through a child rights lens. DREAM develops two-tiered guidelines for secondary school (14-18 years) and University (19-24 years) students as future ICT professionals. Through comparative gap analysis across four countries (Italy, Greece, Poland, Ukraine), surveys of 400 students and 40 educators, and validation workshops involving 160 professionals, the project aims to embed Protection, Participation, and Provision principles into app development education.

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1 Content

As students progress from secondary school to university and eventually enter ICT careers, they receive technical training in programming and software design but rarely encounter explicit instruction on children's rights, ethical design for minors, or the unique vulnerabilities of young users. This educational gap produces developers who may inadvertently create apps that fail to protect children adequately, lack age-appropriate design, or exploit data in ways harmful to minors. DREAM addresses this systemic issue by targeting future developers during their formative educational years, integrating child rights principles directly into their technical training. To this aim, the core research contribution of DREAM focuses on systematic investigation of app development competencies. **Phase 1: Gap Analysis**. The project conducts a comparative study examining computing skills across two student demographics: *secondary school students* (14-18 years) enrolled in computing courses; *University students* (19-24 years) in computer science and/or related disciplines. This dual-level investigation enables identification of when and how child rights concepts should be introduced into technical education. The gap analysis employs: *Quantitative component*, by means of online surveys distributed across all four countries targeting 200 secondary school students, 200 university students and 40 faculty/teachers regarding pedagogical approaches and challenges; *Qualitative component*, by means of observation of app development processes in both educational settings, paying attention on how students conceptualize user needs, safety considerations, and ethical implications.

Phase 2: Guidelines Creation. Based on gap analysis findings, DREAM develops two distinct but interconnected sets of guidelines: *Guidelines for Secondary Education*: Foundational introduction to child rights in digital contexts, focusing on awareness-building and basic ethical principles applicable to early technical training; *Guidelines for Higher Education*: Advanced integration of child rights into software engineering curricula, addressing complex topics such as data privacy, persuasive design ethics, accessibility for diverse abilities, and inclusive design practices. Both guideline sets include: concrete learning objectives aligned with technical competencies; practical assessment tools for evaluating student-developed apps; case studies and real-world examples; integration strategies for existing curricula.

Phase 3: Validation. The validation process involves extensive stakeholder engagement through structured workshops: 16 workshops total (4 in each country) with 10 educators per workshop, for a total of 160 professional participants and mixed groups. Through rigorous research, collaborative development, and extensive validation, DREAM seeks to establish a new standard for ethically-informed ICT education across Europe and beyond.

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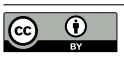

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[1] Patrícia Dias and Rita Brito. 2021. Criteria for selecting apps: Debating the perceptions of young children, parents and industry stakeholders. *Computers & Education* 165 (2021), 104134.