Bot Blitz: A Scalable Hands-On Workshop for Teaching AI and Robotics Concepts Through Narrative-Driven Problem Solving

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Abstract

As artificial intelligence (AI) becomes increasingly prevalent in society, there is a critical need for accessible K-12 educational resources that introduce students to AI and robotics concepts through engaging, hands-on experiences. In this paper, we present a scalable workshop framework that uses narrative-driven problem solving to teach fundamental AI and autonomous systems concepts to students in grades 5-12. Developed through a collaboration between AI researchers and education specialists, Bot Blitz employs Sphero RVR+ robots within immersive storylines ranging from fairground rescue missions for younger students to urban traffic management scenarios for high schoolers. Preliminary observations from workshops with 56 students show high engagement levels and successful completion of programming challenges.

Introduction

As artificial intelligence systems rapidly integrate into everyday life—from smart assistants and recommendation algorithms to autonomous vehicles and medical diagnosis tools—preparing K-12 students with foundational AI literacy has become an urgent educational imperative. The AI4K12 initiative's "Big Ideas" framework emphasizes that every student should understand how computers perceive the world using sensors, how AI systems maintain models for reasoning, how computers learn from data, the challenges of human-AI interaction, and AI's societal impacts (Touretzky 2019; Touretzky et al. 2019). However, translating these abstract concepts into accessible, engaging learning experiences for young learners can be a pedagogical challenge.

Current K-12 artificial intelligence education faces several interconnected challenges that hinder its widespread and effective implementation. According to Casal-Otero et al. (2023), many AI learning experiences in schools focus primarily on technical and applied skills within limited domains without systematically evaluating student understanding. Additionally, accessibility and resource disparities present significant barriers (Arafat et al. 2024). Teacher preparation emerges as another challenge, with educators requiring substantial professional development—some spending up to 20 hours adapting content and integrating resources for AI curricula implementation (Gardner-McCune et al. 2019; Hollands et al. 2024; D. S. Touretzky et al. 2025). The field also suffers from gaps in the availability of developmentally appropriate tools (D. Touretzky et al. 2019). Furthermore, there remain significant challenges in "accessibility, depth of content, and integration of ethical considerations" that must be addressed to create more equitable and comprehensive AI literacy programs (Keller & Steinbauer-Wagner 2024; Long & Magerko 2020).

Narrative-driven learning approaches offer a promising approach to STEM education. Research has shown that embedding technical content within compelling storylines enhances student engagement, knowledge retention, and transfer to real-world applications, particularly in STEM fields where abstract concepts can seem disconnected from authentic contexts (Lin & Chang 2021; Pinkard et al. 2017, 2020; Trujillo & Dutta 2024). When students engage with concepts through immersive scenarios featuring relatable characters and meaningful problem-solving challenges, they can develop both deeper conceptual understanding and increased motivation for continued learning.

Building on these pedagogical foundations, this paper presents Bot Blitz, a workshop for K-12 AI education. Our work makes several contributions to the AI education community. We build upon literature demonstrating that complex AI concepts can be successfully introduced to students as young as 10 years old through carefully designed scaffolding and narrative engagement. We provide a replicable framework that other educators can adapt for diverse contexts while maintaining pedagogical effectiveness. We offer detailed implementation guidance including resource requirements, cost analysis, and practical lessons learned from real workshop deployments. Most importantly, we present an implementation framework designed to make authentic AI education accessible and engaging while maintaining conceptual rigor, with preliminary observations suggesting feasibility for further evaluation.

Related Work

The landscape of K-12 AI education has evolved rapidly in response to the growing recognition that students need early exposure to artificial intelligence concepts to become informed citizens and potential contributors to the field. This section examines current approaches to AI education, educational robotics platforms, and the emerging intersection of narrative-driven learning in technical education, highlighting both achievements and persistent challenges.

AI Education Curricula and Frameworks

The AI4K12 initiative, led by Touretzky et al. (2019), established foundational "Big Ideas" that have shaped much of the current K-12 AI education landscape. These five concepts—perception through sensors, representation and reasoning, learning from data, natural interaction challenges, and societal impacts—provide a comprehensive framework for understanding what students should know about AI. Since the launch of AI4K12, the field has seen significant growth, with over 560 K-12 educators completing professional development courses through the International Society for Technology in Education as of 2019 (Touretzky et al. 2019).

Building on these foundations, several notable curricula have emerged. MIT's "Day of AI" curricula—12 modular, short-format curricula for educators of students aged 5-18 years to develop AI literacy (Hollands & Breazeal 2024). Additionally, MIT Media Lab's "AI + Ethics Curriculum for Middle School" provides open-access materials specifically designed for middle school students and teachers. These materials often incorporate hands-on activities, such as having students develop visual classifiers using Google's Teachable Machine and experiment with bias in training data, fostering discussions about sources of bias and ethical implications of technologies (Payne 2019). Such curricula have demonstrated substantial reach, with some being accessed over 500 times and translated into multiple languages by the broader educational community.

Recent systematic reviews by researchers have mapped the broader landscape of teaching resources for AI education, revealing both the growth and fragmentation of the field (Vahedian Movahed & Martin 2025). Their comprehensive analysis of 671 documents from major educational databases identified 29 high-quality resources that met criteria for AI/ML curricula and tools designed for children, suggesting that while the field is active, there is still a need for effective, research-based resources.

Educational Technology Platforms and Tools

The availability of developmentally appropriate tools has been identified as a critical factor determining the range of AI topics students can explore. Current K-12 AI curricula utilize diverse materials ranging from traditional textbooks to interactive media such as web-based interactive computing environments, online courseware, and project-based learning opportunities that leverage student-friendly coding platforms including Scratch, App Inventor, and Snap! (D. Touretzky et al. 2019).

Several platforms have emerged to bridge the gap between commercial AI services and K-12 accessibility. Cognimates and Machine Learning for Kids combine IBM Watson's AI services with Scratch, enabling students to experiment with machine learning concepts through familiar block-based programming interfaces (Touretzky et al. 2019). Google's Teachable Machine trains custom visual classifiers, while MIT's App Inventor leverages the Amazon Alexa Toolkit to provide conversational AI tools for mobile app development. These platforms represent significant advances in making AI concepts accessible, though they often focus on individual AI techniques rather than comprehensive autonomous systems understanding.

Educational Robotics and Programming Education

Educational robotics has long been recognized as a powerful tool for engaging students in STEM learning, with established platforms like LEGO Mindstorms and VEX Robotics gaining widespread adoption in schools. However, traditional robotics education typically focuses on mechanical construction and basic programming concepts without explicit connections to modern AI and autonomous systems concepts that are increasingly relevant in today's technological landscape (Ching & Hsu 2023).

Recent studies have highlighted both the potential and limitations of current educational robotics approaches. Mehicevic et al. (2024) demonstrated that Sphero robots can effectively teach algorithmic thinking through hands-on programming experiences, with participants showing increased interest in programming after workshops. However, their approach focused primarily on basic programming and algorithmic thinking rather than comprehensive AI literacy.

Broader systematic reviews of educational robotics reveal that while these programs excel at developing computational thinking and collaborative problem-solving abilities, most existing Sphero-based curricula focus on simple movement and light patterns rather than the complex sensor integration and autonomous decision-making that characterize modern AI systems (Promjan & Ditcharoen 2019). Research by Arafat et al. (2024) emphasizes that educational robotics often extend beyond basic programming to enhance collaborative problem-solving abilities but notes that explicit connections to contemporary AI applications remain limited.

Narrative-Driven Learning in Technical Education

Recent research has demonstrated the significant potential of narrative-driven approaches for enhancing student engagement and retention in STEM fields, particularly when abstract concepts can seem disconnected from real-world applications. Lin and Chang (2021) developed a progressive digital narrative teaching method that demonstrated how anthropomorphic situational narrative materials increased students' understanding and enjoyment, thereby improving learning motivation and effectiveness in technical subjects.

Studies show that when students engage with technical content through compelling storylines, they develop both deeper conceptual understanding and increased motivation for continued learning (Ijiga et al. 2021; Kelleher et al. 2007). The integration of visual narrative materials with hands-on technical activities has proven particularly effective, with research indicating that narrative pedagogy may help students understand experiences, organize knowledge, and increase learning motivation by giving meaning to technical concepts (Lin & Chang 2021).

However, the application of narrative-driven approaches specifically to AI education remains underexplored. While individual curricula have incorporated storytelling elements, systematic frameworks that integrate compelling narratives with comprehensive AI concept development—particularly in autonomous systems contexts—are notably absent from the literature.

Resource Descriptions

Bot Blitz is a comprehensive workshop framework that transforms abstract AI concepts into engaging, hands-on learning experiences through narrative-driven robotics challenges. The resource consists of two age-adapted workshop formats that use storytelling to contextualize complex autonomous systems concepts within familiar scenarios.

Framework Components

Bot Blitz Junior (Grades 5-8): A 4-hour workshop using the North Carolina State Fair as a narrative context. Students program Sphero RVR+ robots to navigate fairground obstacle courses, complete scavenger hunts to find and recover lost items, compete in search & rescue missions (retrieving lost phones, fixing broken rides), and conclude with the "Chinese Lantern Festival" ultimate challenge to find "Athena Owl."

Bot Blitz Advanced (Grades 8-12): A 75-minute intensive workshop using "Code City in Chaos"—where Athena Owl's friend “Duckinson” visits during a mysterious blackout that freezes all traffic signals. Students program City Gridlock Ops Team robots to help Duckinson gather essential supplies (flashlight, duck snacks, solar panels, raincoat) and navigate to Athena’s treehouse.

Pedagogical Approach

Our framework is grounded in four core design principles. First, the approach leverages narrative engagement by embedding technical activities within compelling storylines to support both intrinsic motivation and memorable contexts for learning abstract AI concepts. This narrative structure may help students maintain sustained attention throughout extended learning sessions, as they become invested in the scenarios they are working within rather than viewing activities as isolated technical exercises.

Second, the framework implements progressive complexity through a carefully scaffolded progression that begins with basic robot control and sensor calibration before advancing to sophisticated multi-sensor autonomous decision-making. This sequencing is informed by principles of developmental appropriateness and attempts to account for students' varying levels of prior programming experience, so that learners can build competency incrementally without becoming overwhelmed by complexity.

The third principle centers on collaborative learning through team-based implementation, typically involving groups of two to three students per robot. This collaborative structure serves multiple pedagogical functions: it aims to promote peer learning as students share knowledge and problem-solving strategies, seeks to reduce individual frustration by distributing cognitive load, endeavors to maximize equipment efficiency in resource-constrained environments, and mirrors the collaborative practices common in real-world engineering contexts.

Finally, the framework emphasizes real-world integration by establishing direct connections to current AI research through live demonstrations of professional autonomous systems. Students observe and interact with cutting-edge technologies including drones, robotic dogs, ground vehicles, and robotic arms from the Cyber-Physical Systems Lab, to help them understand how classroom concepts translate to contemporary research and industry applications.

Target Age Groups and Implementation Context

Bot Blitz Junior serves students in grades 5-8 (ages 10-14) who possess minimal to no prior programming experience. This introductory track has been specifically designed for implementation in after-school programs, summer camps, STEM enrichment activities, and special educational events where students may be encountering robotics and programming concepts for the first time.

Bot Blitz Advanced addresses the needs of students in grades 8-12 (ages 13-18) who have developed basic familiarity with programming fundamentals. This upper-level curriculum is structured to integrate effectively within formal computer science classes, robotics clubs, pre-engineering programs, and intensive STEM workshops where students can build upon existing computational knowledge and engage with more sophisticated robotics challenges.

Technical Requirements and Setup

- Sphero RVR+ robots: 6-10 units (1 robot per 2-3 students)
- Programming devices: Laptops/tablets capable of running Sphero Edu app (Chromebooks running the Sphero web app can successfully substitute for full Windows laptops)
- Course materials: Colored construction paper, markers, scissors, tape
- Physical space: Large room (minimum 20'x30') with smooth flooring
- Obstacle components: Tables, chairs, cardboard boxes, colored tape
- Sphero Edu application (free download at www.edu.sphero.com)
- Block-based programming interface requiring no prior coding experience
- Bluetooth connectivity between devices and robots

Staffing Requirements

- Lead instructor familiar with block-based programming
- 3-4 technical assistants for groups of 15+ students (1:4 ratio recommended)
- Encouraged: Research laboratory personnel for real-world demonstrations

Cost Analysis and Sustainability

- Sphero RVR+ units: $300-350x8 robots = $2,400-2,800
- Course materials and consumables: $100-200
- Total setup cost: $3,000-4,000
- Annual maintenance/replacement budget: ~$200
- Cost per student (assuming 100 students/year): $30-40

Comparative Value Analysis: More cost-effective than alternatives like retired LEGO Mindstorms ($700+/kit) & Education Spike ($400/kit) or VEX Robotics ($500+/kit) while providing sensor capabilities specifically designed for AI and autonomy education applications.

Implementation Timeline

The Pre-workshop Setup requires two to three hours and includes:

- Robot charging and firmware updates via Sphero Edu app
- Course layout design and physical obstacle setup
- Device configuration and app installation testing across all programming devices
- Material preparation and backup equipment verification protocols
- Worksheet to reinforce programming concepts (optional)

The day of setup requires around sixty minutes and includes:

- Final equipment checks and robot-device pairing via Sphero Edu app
- Obstacle course setup simulating fairground layout or city navigation challenges
- Student team assignments (2-3 students per robot) and name tag distribution
- Permission forms and safety briefing completion

AI Concepts Addressed

The workshop curriculum introduces students to fundamental concepts that form the foundation of modern autonomous systems. Students learn to use multiple sensor modalities including color detection, light sensing, and gyroscope/accelerometer data to enable robots to perceive and respond to their environment, with activities progressing from single-sensor tasks to complex multi-sensor decision-making scenarios.

Using block-based programming environments, students develop algorithms for path planning, obstacle avoidance, and goal-directed behavior, while advanced students create flowcharts before implementation to reinforce systematic thinking about autonomous system design. Through scenario-based challenges, students program robots to make independent decisions based on sensor input, mimicking the decision processes found in self-driving cars, delivery drones, and other autonomous systems. The workshop scenarios may help students understand how individual robot behaviors contribute to larger system goals, such as traffic management or emergency response coordination, fostering systems thinking about complex autonomous networks.

Learning Goals and Design Intentions

The Bot Blitz framework is designed with the following learning objectives in mind. Formal assessment of these outcomes is planned for future implementations. The workshop aims to develop programming proficiency across multiple levels, with junior students mastering block-based programming environments to create robot movement sequences, implement sensor-based detection systems, and program search and rescue behaviors for obstacle navigation and item retrieval. We expect advanced students demonstrate the ability to create algorithm flowcharts before programming, integrate multiple sensors including color, light, and gyroscope inputs, and implement autonomous decision-making for complex traffic management scenarios.

All learners potentially develop sensor integration understanding by calibrating color sensors for identification tasks and combining multiple sensor inputs for autonomous navigation through complex layouts. Students connect their programming activities to real-world autonomous systems applications including self-driving cars, intelligent transportation systems, emergency response robotics, and smart city infrastructure through exposure to professional research platforms.

The workshop also emphasizes collaborative and communication competencies, with students explaining programming strategies using technical vocabulary, describing robot behaviors and decision-making processes, and communicating debugging approaches during problem-solving sessions. Teams may demonstrate effective role rotation between programming, testing, and observation responsibilities while engaging in peer teaching and developing collective debugging strategies. Additionally, learners develop creative problem-solving abilities by designing novel navigation approaches, innovative signaling systems for human-robot communication, and original solutions to fairground rescue missions and traffic management challenges.

Implementation Findings

Deployment Overview

The Bot Blitz framework was implemented across two distinct workshop formats, serving a total of 56 students across different age groups and educational contexts. Each implementation provided valuable insights into the framework's effectiveness and adaptability for diverse learning environments. The inaugural Bot Blitz Junior workshop served 20 students in grades 5-8 (ages 10-14) during a comprehensive 4-hour Saturday session from 9:00 AM to 1:00 PM at Duke University.

The session followed a carefully structured timeline designed to balance hands-on learning with exposure to professional research applications: Student team formation and workshop overview, Sphero Edu platform orientation and basic controls, first narrative-driven programming challenge, search & rescue competition, exposure to professional autonomous systems including robotic arms, drones, and active research laboratories, learning assessment and feedback collection.

Students were organized into six teams of 3-4 participants per Sphero RVR+ robot, with an additional robot available for demonstrations and backup purposes. This team structure aimed to facilitate collaborative learning while ensuring adequate hands-on experience for all participants.

Bot Blitz Advanced Implementation

The advanced workshop served 36 students in grades 8-12 during a focused 75-minute afternoon session (12:30 PM - 1:45 PM) as part of Athena Institute's AI Day. The participant cohort included 20 students from local schools. The workshop compressed essential learning into an intensive format: storyline introductions, Sphero RVR+ technical overview, logic challenge designs, real-world demonstrations, final mission competition, and learning assessments. Students worked in 12-14 teams of 2-3 participants per robot, with the smaller team size reflecting the older students' increased independence and the intensive workshop format.

Preliminary Observations

The following observations are based on informal facilitator notes rather than systematic data collection. These preliminary patterns informed our assessment that the framework is feasible and worth formal evaluation, but they should not be interpreted as validated learning outcomes. For these two implementations, all six teams successfully established device connectivity and completed initial programming tasks, five of six successfully programmed robots to find and recover lost fairground items using sensor integration, and all teams actively participated in collaborative problem-solving challenges. Students engaged with autonomous systems concepts as evidenced by their programming attempts and troubleshooting discussions. Twelve of fourteen teams in the older students' group completed comprehensive algorithm design, worked well collaboratively, and completed the scenario mission.

Both workshop formats seemed to engage students, with participants maintaining active involvement throughout extended learning sessions. Notable indicators included continued technical discussions during break periods, voluntary exploration of advanced programming features beyond required activities, and sustained collaborative problem-solving even during informal moments. Students consistently remained engaged with the narrative contexts, with many referencing story elements when describing their programming strategies.

Facilitators also observed peer learning dynamics across both age groups. Students consistently explained programming concepts to teammates using emerging technical vocabulary, developed collaborative debugging strategies, and demonstrated effective knowledge transfer between team members with different technical backgrounds.

Limitations and Future Work

This implementation report describes the initial deployment of the Bot Blitz framework and is based on facilitator observations rather than systematic data collection. Key limitations include: 1) Student learning outcomes were not measured through pre/post tests or validated instruments, 2) A small sample size with only 56 students across two implementations, 3) Workshops were conducted at a single institution with self-selected participants, and 4) No control group: Unable to compare effectiveness against alternative approaches.

Future work will address these limitations through the development of validated assessment instruments aligned with

AI4K12 frameworks, controlled comparisons with traditional robotics curricula, broader implementation across diverse educational contexts, and an analysis of which narrative elements most effectively support learning.

Conclusions

Bot Blitz offers a promising approach to K-12 AI education that addresses three critical challenges identified in current approaches: the lack of hands-on experience with integrated autonomous systems, limited scalability across diverse age groups, and insufficient connections between classroom activities and real-world AI applications. Through its narrative-driven framework, Bot Blitz aims to transform abstract AI concepts into engaging learning experiences that span from elementary fairground rescue missions to high school urban traffic management scenarios.

Our preliminary implementation results with 56 students across grades 5-12 provide encouraging evidence that the framework can deliver on its core pedagogical objectives. All participating teams successfully completed fundamental autonomous systems activities including sensor integration, algorithmic decision-making, and collaborative problem-solving. The observed high engagement levels throughout extended learning sessions, combined with students' voluntary exploration of advanced programming features and sustained technical discussions during break periods, suggest that narrative-driven learning may enhance both motivation and knowledge retention in AI education contexts, though more rigorous evaluation is needed to confirm these effects. Future iterations of Bot Blitz will utilize more robust evaluation methods.

Importantly, our initial observations indicate that the framework enables meaningful engagement with sophisticated AI concepts for students as young as 10 years old, though systematic assessment is needed to validate learning outcomes. While these results are promising, they represent preliminary evidence that requires more comprehensive evaluation to validate the framework's effectiveness and understand its broader implications for AI literacy development.

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References

Arafat, M. H., Budiyanto, C. W., Yuana, R. A., & Fenyvesi, K. (2024). Implementation of Integrated STEM Learning in Educational Robotics towards 21st Century Skills: A Systematic Review. *International Journal of Education in Mathematics, Science and Technology, 12*(5), 1127–1141.

Casal-Otero, L., Catala, A., Fernández-Morante, C., Taboada, M., Cebreiro, B., & Barro, S. (2023). AI literacy in K-12: A systematic literature review. *International Journal of STEM Education*, 10(1), 29. https://doi.org/10.1186/s40594-023-00418-7

Ching, Y.-H., & Hsu, Y.-C. (2023). Educational Robotics for Developing Computational Thinking in Young Learners: A Systematic Review. *Techtrends,* 1–12. https://doi.org/10.1007/s11528-023-00841-1

Gardner-McCune, C., Touretzky, D., Martin, F., & Seehorn, D. (2019). *AI for K-12: Making room for AI in K-12 CS curricula.* 1244–1244.

Hollands, F. M., DiPaola, D., Breazeal, C., & Ali, S. (2024). *AI mastery may not be for everyone, but AI literacy should be*. 60–66.

Ijiga, O. M., Ifenatuora, G. P., & Olateju, M. (2021). Digital Storytelling as a Tool for Enhancing STEM Engagement: A Multimedia Approach to Science Communication in K-12 Education. *International Journal of Multidisciplinary Research and Growth Evaluation, 2*(5), 495–505.

Kelleher, C., Pausch, R., & Kiesler, S. (2007). Storytelling Alice motivates middle school girls to learn computer programming. *Proceedings of the 2007 Conference on Human Factors in Computing Systems*, 1455–1464.

Keller, S., & Steinbauer-Wagner, G. (2024). *Fostering AI Literacy: An Investigation of Learning Resources for Secondary School Students*. EDU4AI.

Lin, C.-H., & Chang, Y.-Y. (2021). A Progressive Digital Narrative Teaching Method to Improve Learning Motivation as a Lifelong Learning Skill. *Sustainability*, 13(23), Article 23. https://doi.org/10.3390/su132312991

Long, D., & Magerko, B. (2020). What is AI Literacy? Competencies and Design Considerations. *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems,* 1–16. https://doi.org/10.1145/3313831.3376727

Mehicevic, A., Doloc-Mihu, A., & Robertson, C. (2024). *Teaching Algorithms and Growing STEM with Sphero*. 32–36.

Payne, B. H. (2019). An *Ethics of Artificial Intelligence Curriculum for Middle School Students* (Curriculum and Resources No. 106). https://docs.google.com/document/d/1e9wx9oBg7CR0s5O7YnY-HVmX7H7pnITfoDxNdrSGkp60/edit?tab=t.0#heading=h.lj79p5m41lr3

Pinkard, N., Erete, S., Martin, C. K., & Royston, M. M. de. (2017). Digital Youth Divas: Exploring Narrative-Driven Curriculum to Spark Middle School Girls' Interest in Computational Activities. *Journal of the Learning Sciences,* 26(3), Article 3. https://doi.org/10.1080/10508406.2017.1307199

Pinkard, N., Martin, C. K., & Erete, S. (2020). Equitable approaches: Opportunities for computational thinking with emphasis on creative production and connections to community. *Interactive Learning Environments, 28*(3), 347–361.

Promjan, P., & Ditcharoen, N. (2019). *Investigating stem-based learning package for enhancing programming and problem solving skills.* International Conference on Computers in Education.

Touretzky, D. (2019). The ai4k12 initiative: Developing national guidelines for teaching ai in k-12. *GlobalSWEdu2020_Touretzky. Pdf.*

Touretzky, D., Gardner-McCune, C., Breazeal, C., Martin, F., & Seehorn, D. (2019). A year in K–12 AI education. *AI Magazine, 40*(4), 88–90.

Touretzky, D. S., Gardner-McCune, C., Cox, B., Uchidiuno, J., Yu, X., Gelder, W., McKlin, T., Brown, T. L., Kareem, B., Chung, W., Jones, A., & Kolodner, J. (2025). Artificial intelligence education in Georgia middle schools. *AI Magazine, 46*(2), e70013. https://doi.org/10.1002/aaai.70013

Trujillo, C. M., & Dutta, S. (2024). *Molecular storytelling: A conceptual framework for teaching and learning with molecular case studies. 9*, 1379515.

Vahedian Movahed, S., & Martin, F. (2025). From Play to Pedagogy: Discovering the Ecosystem of AI Educational Tools and Curricula. *Proceedings of the 30th ACM Conference on Innovation and Technology in Computer Science Education V. 1*, 333–339. https://doi.org/10.1145/3724363.3729068