

# Study of The Effectiveness of Introducing a National Curriculum for Robotics Classes in Kazakhstan

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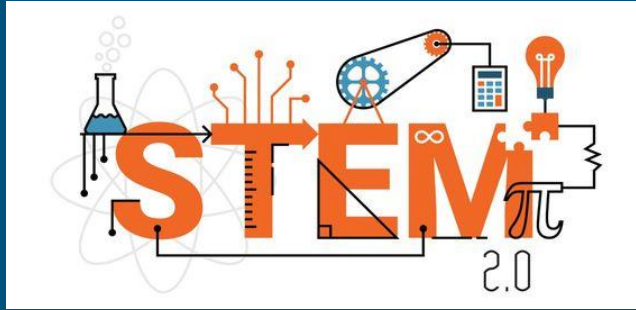
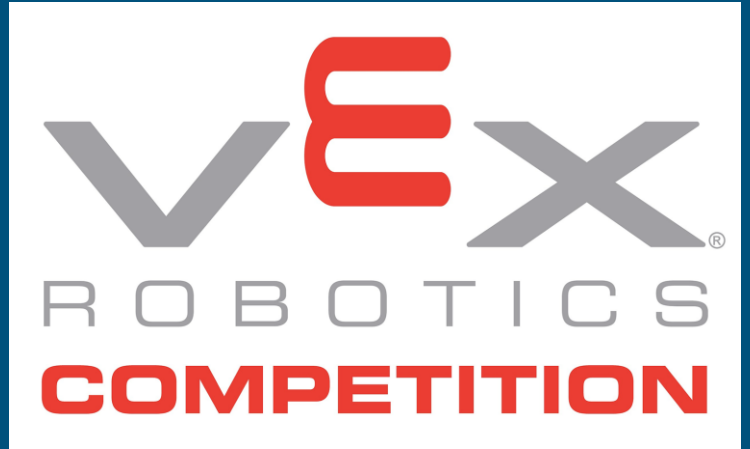
**The main purpose is to analyze the programs of developed countries in robotics education so as to develop an innovative method of educating in Kazakhstan.**

*If a national curriculum can attract a pupil's interest in STEM field by original, accessible and permissible education materials and affordable robotic platforms, then it will be successful to create foundation of robotics in Kazakhstan.*

# Outline

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- Do **robotics competitions** affect student interest in STEM?
- How **national curriculum** can affect robotics education in different countries?
- Which **equipment** will be the most successful platform solution for educating secondary school students?



# Robotics competitions in the world

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FIRST - US-based international organization

BEST Robotics - American student competition

FIRA - Asian organization competing with Robocup

Robocup - Organization similar to FIRA but with more expansion

Battlebots - American TV Program

ABU Robocon - Asian organization similar to FIRST

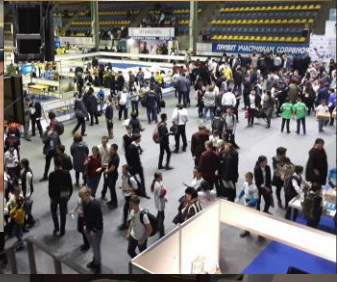
Robo One - Asian humanoid reference event

RoboGames (aka Robolympics) - American well known competition

World Robot Olympiad - **Similar to Lego and Vex with less branding**

VEX - The VEX championships





# Do robotics competitions affect student interest in STEM?

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- **Yes**

## Competitions improve

- *communication skills*
- *creativity*
- *cooperation*
- *critical thinking*
- *problem solving*

# Robotics competitions in Kazakhstan

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KazRobotics

Roboland

Robofest

WRO



# National Curriculum in different countries

**The USA** - subject “Robotics Engineering”

**Slovenia** - elective courses in subject “Robotics in technology engineering”

**Italian** Ministry of Education - “K-12 school curriculum” - IFTS course

**Europe-2020 strategy**

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- technology is everywhere, except in schools
  - science must not be limited for children

**Solution is General National Curriculum with Robotics Platform**

# Educational Platforms

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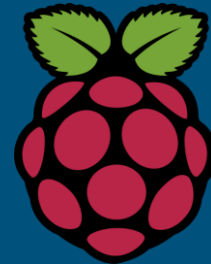
iRobot Roomba & Create Robot  
Kinect sensor



GNU-based development tools  
Lego Mindstorms



Arduino



Raspberry Pi



Beaglebone



# Thanks for your attention!

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