



The Impact of 21st Century Instructional Design on School Classrooms and Facilities

ORANGE UNIFIED SCHOOL DISTRICT

EDUCATIONAL SERVICES DIVISION

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The Past - 1960's schools

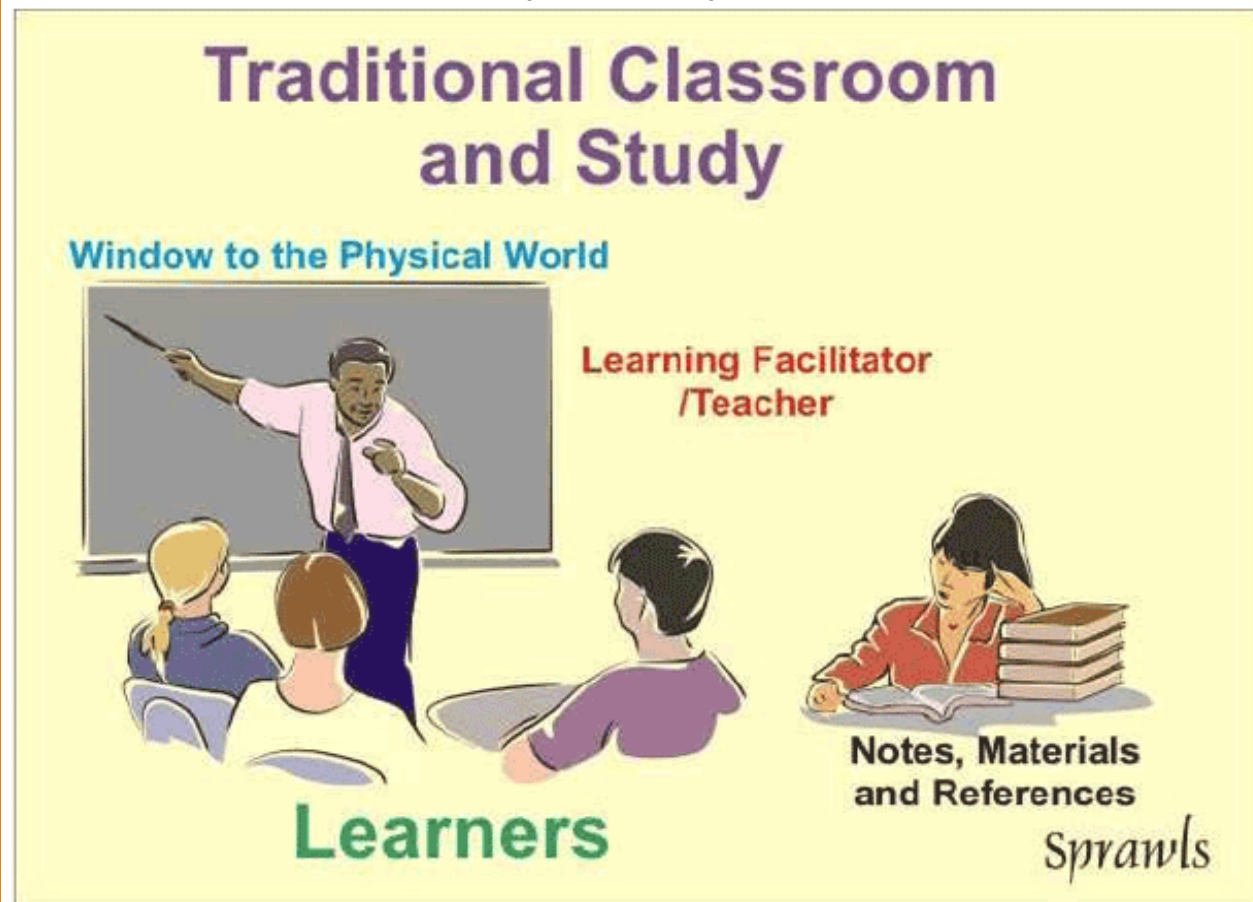
Physical layout of the classroom

Assumes learning is “directional”

Places the teacher at the “front”

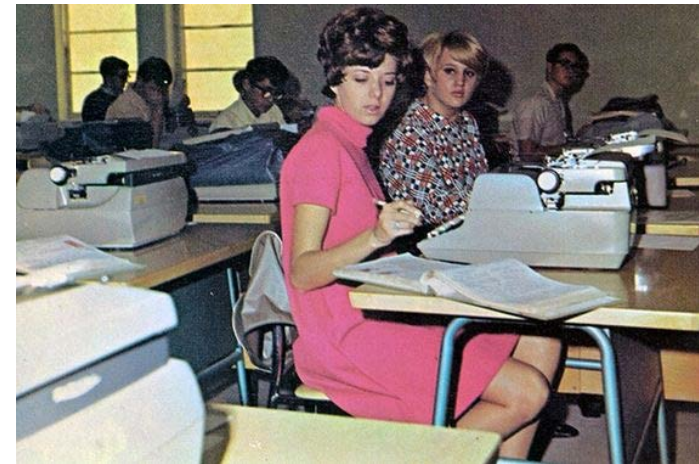
Students are to “focus” on the teaching

“Distractions” take you away from the teacher



Content/Instruction of the Past

Courses / Curriculum of 1960s



Grade Eleven

Subjects	Periods per week	Credits	Subjects	Periods per week	Credits
Academic Classical			Technical		
English III	5	5	English III	5	5
Physical Education and Health III	3	1	Physical Education and Health III	3	1
U.S. History I	5	5	U.S. History I	5	5
Algebra II	5	5			
 FOREIGN LANGUAGE			<i>Elect two of three</i>		
<i>Elect One</i>			Wood Shop III	5	2½
French III			Metal Shop III	5	2½
Spanish III			Architect. Drawing	5	2½
Latin III	5	5	Home Ec. III	5	5
Electives		5	Electives	5	5
 Academic Scientific			General		
English III	5	5	English III	5	5
Physical Education and Health III	3	1	Physical Education and Health III	3	1
U.S. History I	5	5	U.S. History I	5	5
Algebra II	5	5	Electives		10-15
Physics	6	5			
Electives		5	Distributive Education		
 Business Clerical			English III	5	5
English III	5	5	Physical Education and Health III	3	1
Physical Education and Health III	3	1	U.S. History I	5	5
U.S. History I	5	5	Distributive Ed.		5
Bookkeeping I	5	5	Electives		5-10
Typing II	5	2½			
Electives		2½-5	 Business Secretarial		
 Business Secretarial			English III	5	5
English III	5	5	Physical Education and Health III	3	1
Physical Education and Health III	3	1	U.S. History I	5	5
U.S. History I	5	5	Stenography I	5	5
Stenography I	5	5	Typing II	5	2½
Typing II	5	2½	Electives		2½-5
Electives		2½-5			

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Grade Twelve

Subjects	Periods per week	Credits	Subjects	Periods per week	Credits
Academic Classical			Business Secretarial		
English IV	5	5	English IV	5	5
Physical Education and Health IV	3	1	Physical Education and Health IV	3	1
U.S. History II	5	5	U.S. History II	5	5
Chemistry	5	5	Stenography II	5	5
			Secretarial Trng.	5	5
 FOREIGN LANGUAGE			Electives		
<i>Elect One</i>			2½-5		
Spanish IV			Distributive Education		
French IV			English IV	5	5
Latin IV	5	5	Physical Education and Health IV	3	1
Electives		2½-5	U.S. History II	5	5
 Academic Scientific			Distributive Ed.		
English IV	5	5			10
Physical Education and Health IV	3	1	 Technical		
U.S. History II	5	5	English IV	5	5
Advanced College Prep Math	5	5	Physical Education and Health IV	3	1
Chemistry	6	5	U.S. History II	5	5
Electives		2½-5	 <i>Elect two of three</i>		
 Business Clerical			Wood Shop IV		2½
English IV	5	5	Metal Shop IV		2½
Physical Education and Health IV	3	1	Advanced Technical Drawing		2½
U.S. History II	5	5	Home Ec. IV	5	5
Bookkeeping II	5	5	Electives		5-10
Clerical Office Practice	5	5	 General		
Electives		2½-5	English IV	5	5
 Business Secretarial			Physical Education and Health IV	3	1
English IV	5	5	U.S. History II	5	5
Physical Education and Health IV	3	1	Electives		10-15
U.S. History II	5	5			
Bookkeeping II	5	5			
Clerical Office Practice	5	5			
Electives		2½-5			

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Procedural Knowledge

Movies Theaters, not Starbucks

The Present - 21st Century Schools

Physical layout
of the
classroom -
Collaboration
spaces for
critical
thinking and
designing

Acknowledges learning can be “social”
Places the teacher as the “activator”

FUTURE CLASSROOM: STUDENT-CENTRIC
This model utilizes the teacher as mentor, problem solver, and support person. The focus for this “floating” teacher is on serving individual students who are learning at their own pace.

BRIDGING THE GAP
While academics argue the specific classifications, the next generation in education needs to accommodate the broad spectrum of learning types.

UNQUISTIC
MUSIC
NATURALIST
NOISE-CANCELING HEADPHONES
SPATIAL

USER-GENERATED SOFTWARE
As students use online courseware, they can customize it for other learners. They can even give feedback and include a rating for their peers.

The infographic illustrates a student-centered classroom layout. It features several circular learning stations where students are working on laptops. A teacher is shown as a “floating” figure, moving between these stations to provide support. The layout is designed to accommodate various learning styles, including linguistic, musical, naturalist, and spatial learners. A section titled “User-Generated Software” shows a student interacting with a digital interface, highlighting the importance of student feedback and customization in modern education. The overall environment is collaborative and focused on individual learning paths.

21st Century Content/Instruction

Instructional technology integration in all content areas (K-12)

Digital literacy skills for demonstrating new learning (K-12)





Problem Solving

Starbucks, not movie theaters



Science, Technology, Engineering & Mathematics (STEM) Labs to stimulate innovation and creativity



Career Technical Education (CTE) Pathway courses aligned to global economy



Aviation Pathway

Physics/ STEM Action Lab –
Rocket launch





Take Three Courses
Be a Pathway Completer
 2016/2017 Proposed Pathways

Career Technical Education Courses by Pathway

Art, Media, & Entertainment

- Career Focus AME (01)
- Art of Graphic Design (UC-f) (02) *
- Art of Graphic Design II (UC-f) (03)
- Art of Animation I (UC_f) (02)
- Art of Animation II (UC-f) (03)
- Video Game Design I (02)
- Video Game Design II (03)
- Art of Video Production I (UC-f) (01)
- Art of Video Production II (UC-f)(02)
- Professional Dance I (01)
- Professional Dance II (02)
- Professional Dance III (03)
- Art of Composition (UC-f) (03)
- Professional Internship (03)

Engineering (Proposed for 2016-2017)

- Intro to Engineering (01)
- AP Computer Science Principles (03)
- Professional Internship (03)

Protective Service

- Career Focus Protective Service (01)
- Career Focus Legal Services (01)
- Criminal Justice (02)
- Crime Scene Investigation (02)
- Professional Internship (03)

Articulated Classes for College Credit

Medical Core	CCC
Art of Graphic Design	CCC / GWC / SAC
Child Development	SCC / SAC
Careers in Education	SCC / SAC
Fire Technology	SAC
International Business	SAC
Global Marketing	SAC
Technology Certification	CCC / GWC
	SCC / SAC

Education and Child Development

- Career Focus Education (01)
- Careers in Education (02) *
- Child Development (UC-g) (02) *
- STEAM Teach – Science (03)
- Professional Internship -
Education (03)

**Information and Communications
 Technology**

- Exploring Computer Science (UC-g) (01)
- Technology Certification (02) *
- ICT Essentials (02)
- AP Computer Science Principles (03)
- Professional Internship (03)

Aviation

- Career Focus Aviation (01)
- Aviation 1
- Aviation 2 (02)
- Professional Internship (03)

Health Sciences

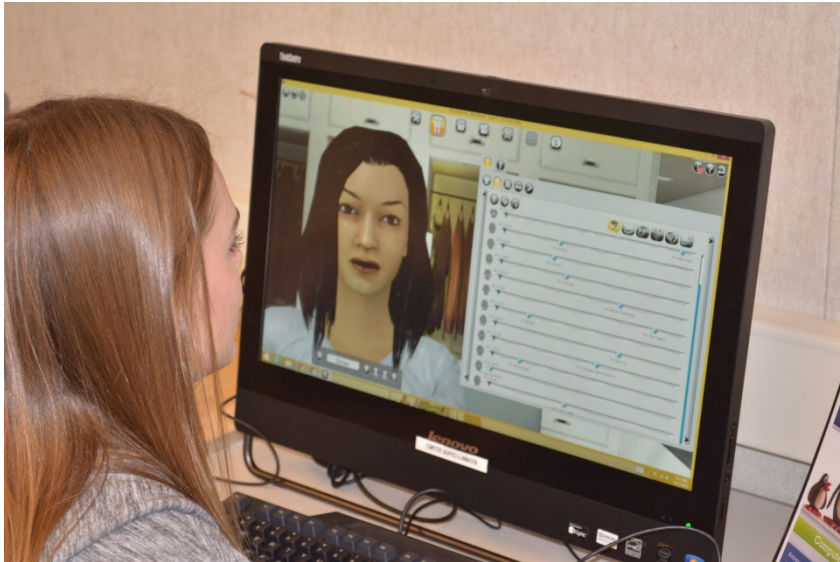
- Career Focus Medical (01)
- Medical Core (02)*
- Sports Medicine (02)
- Body Systems and Disorders (UC-g) (02)
- Emergency Medical Responder (02)
- Emergency Medical Technician (02)
- Professional Internship (03)

*Graduate with a pathway tassel
 and receive a certificate
 upon completing
 three consecutive pathway courses.*

Let's Take Three



Career Technical Education (CTE) pathway courses aligned to global economy

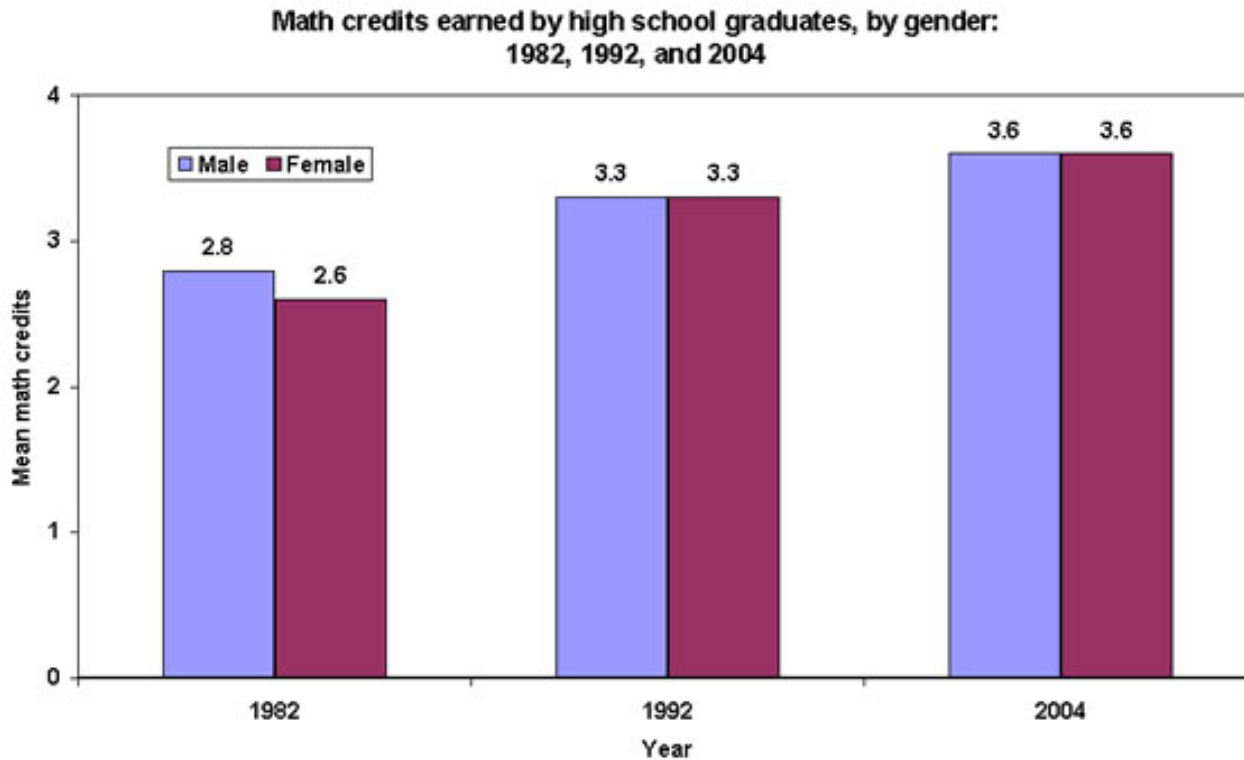


Art, Media & Entertainment -
Art of Animation

Criminal Justice Pathway -
Forensics / CSI



In 22 years, the growth in number of Physics classes has tripled



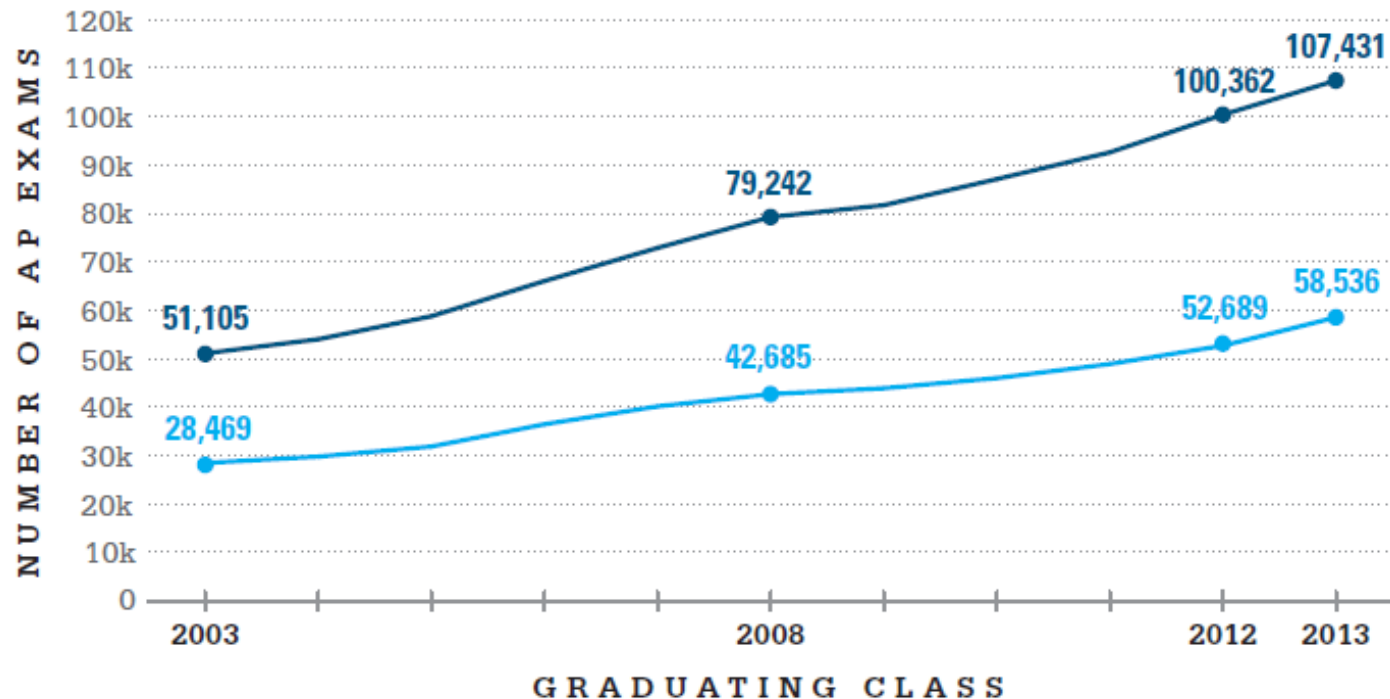
National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, Washington, D.C.

In 1982, fewer than 10% of girls had completed pre-calculus or calculus, compared to about 12% of boys. By 2004, 34% of girls were completing pre-calculus or calculus, compared to 32% of boys.

Chemistry

Change in AP[®] Exam Participation and Performance

- Taken by graduates during high school
- Taken by graduates during high school scoring 3+



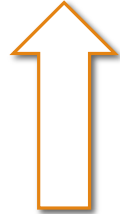
Number of AP tests in Chemistry have doubled in 10 years

K-12 Implications for STEM learning

Top
Features
needed in
Classrooms

Promoting
21st Century
Instructional
Design

High School



- Additional modern science labs for advanced courses required by universities
- Additional classroom lab space for STEM action labs and CTE pathways
- Science labs for 21st century needs are more complex and require more materials/space

Middle School



- Instructional collaboration space for modern technology and STEM

Elementary School

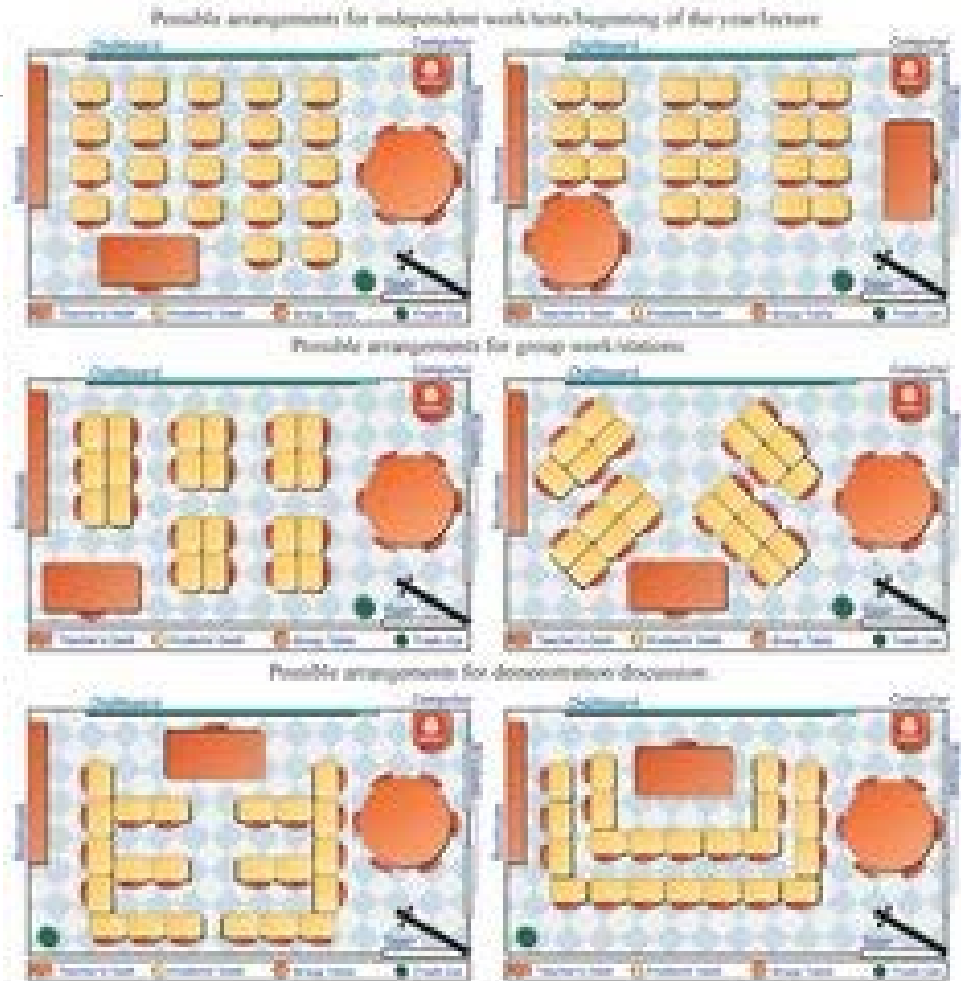


- Classroom furniture configured for collaboration and critical thinking

Implications

At the elementary level, the same classroom can be reconfigured to accommodate a range of tasks and lessons, but additional facilities are needed at the high school to accommodate rapid innovation in a variety of STEM fields.

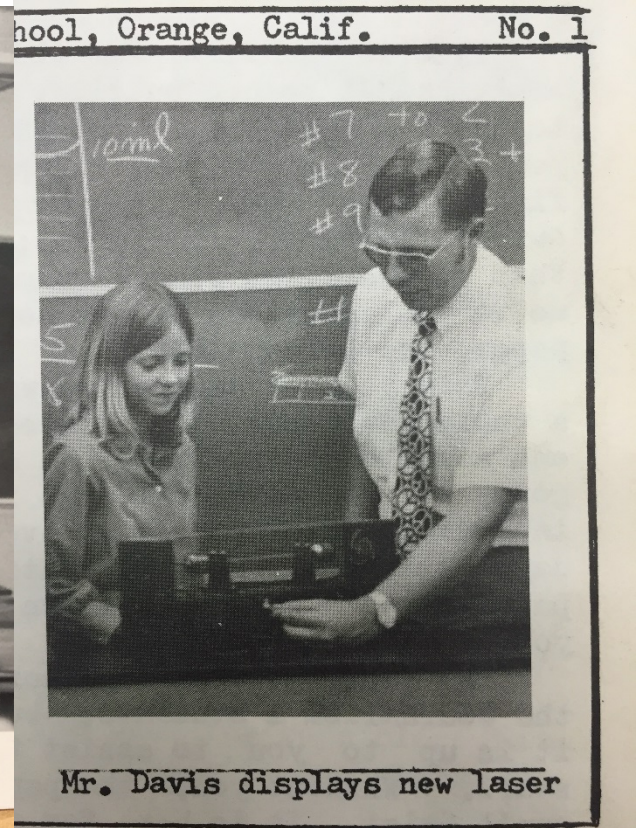
K-12 instructional demands since Orange Unified schools were initially constructed require redesign and modernization to ensure student success and competitiveness in the 21st Century careers.





<https://vimeo.com/158347019>

Orange USD Teachers from the 1960's providing instruction
-- classrooms are the same, teachers are still excellent, students need
access to advanced learning in updated classrooms and labs



QUESTIONS?