



**CENTER FOR ADVANCED RESEARCH
AND TECHNOLOGY**

A regular meeting of the Board of Directors of the Center for Advanced Research and Technology (CART) was held on Tuesday, October 13, 2009 at 4:00 p.m. in Room N102 located at 2555 Clovis Avenue in Clovis, California.

Chairman Fortune called the meeting to order at 4:04 p.m.

**CALL TO ORDER
ROLL CALL**

BOARD	August	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
ASADOORIAN	Present	Present	Absent								
CASH	Present	Present	Present								
FORTUNE	Present	Present	Present								
FROST	Absent	Present	Present								
HANSON	Present	Present	Present								
LAKE	Present	Present	Absent	Present							
SANDOVAL	Present	Present	Present								
STAFF											
FISHER	Present	Present	Present								
FORBES	Absent	Present	Present								
CHUTE	Present	Present	Present								
JOHNSTON		Present									

MSCU [Frost/Cash] to approve the September 8, 2009 regular Board meeting minutes as submitted.

**APPROVAL OF
MINUTES**

Susan Fisher introduced the new teachers assigned to the Psychology Lab: Jim Pardieu, Chemistry and Todd Lile, English.

**INTRODUCTION
OF NEW
TEACHERS**

Jim Pardieu shared that he had been a contractor for thirty years and then decided to become a teacher, specifically a science teacher. Mr. Pardieu is a 2006 graduate from California State University Fresno. Todd Lile shared that he began his career as a special education teacher and Assistant Basketball coach at Clovis High School; then transferred to Clovis West High School; and joined the CART Multimedia lab when CART first began. After two years at CART Mr. Lile and his wife accepted contracts at the American School of Honduras working for the State Department and then spent 5 years in the Persian Gulf in Dubai, following the principal from the school in Honoduras. After five years in Dubai Mr. Lile and his family returned home.

MSCU [Sandoval/Cash] to approve the October 13, 2009 agenda as submitted.

**APPROVAL OF
AGENDA**

CONSENT

MSCU [Sandoval/Frost] to approve the consent agenda as submitted.

CONSENT AGENDA

Approved purchase orders from September 4, 2009 through October 8, 2009 and approved warrants numbered 432148-432153; 432464-432470; 432727-432738; 433053-433058; 433641-433651; and 434060-434064.

1 Approved the following field trips.

2 October 20, 2009

3 Environmental Lab Field Trip

4 Buck Meadows, Sierra National Forest

5 To teach students the importance of forest ecosystems and their importance
6 to the Central Valley. Students will study the meadow ecosystem and learn
7 about the transition zones of the forest.

8 Day Trip Only – Students will be transported in two charter buses + the
9 CART Van. Three Environmental Lab Instructors + US Forest Service
10 employees will be chaperoning/supervising

11 Funding: ROP

12 November 5 & December 2; February 17; March 24, 2009; & May 20, 2010

13 Fresno FARMS Leadership Program

14 Environmental Lab Field Trips – Various Locations in Fresno County

15 Students will be participating in ropes course; visiting tomato processing
16 plant; working with Audubon Society; and visiting multiple farms to learn
17 about best farm practices

18 Day Trips Only: Students transported by supervising instructor in CART
19 van.

20 Approved the following conference requests.

21 October 26-28, 2009

22 John Forbes, Ed.D., Dean of Curriculum & Instruction

23 Center for Nonprofit Success San Francisco Fundraising Summit

24 To develop skills, contacts and resources for fundraising for CART

25 San Francisco, California

26 Funding: ROP

27 November 17, 2009

28 Susan Fisher, Chief Operating Officer

Coalition for Multiple Pathways Conference

Sponsored by Connect Ed Coalition for Multiple Pathways

Sheraton Grand Hotel

Sacramento, California

Funding: ConnectEd

December 3-5, 2009

Steve Wilson, Instructor, Environmental Lab

Matt Jordan, Instructor, Biomedical Engineering Lab

National Science Teachers Association Conference [NSTA]

Phoenix, Arizona

Funding: Environmental Lab/JPA Administrative Budgets

INFORMATION

26 Recommended revisions to the Educational Services Agreement were
27 reviewed. Mrs. Fisher explained that the change of CART from a charter
28 school to a Joint Powers Authority necessitates revisions to the current
Educational Services Agreement as well as other policies. Legal counsel has
reviewed the Educational Services Agreement and made specific
recommendations for revisions. This matter will be placed on the action
portion of the agenda in November.

**EDUCATIONAL
SERVICES
AGREEMENT**

1 John Forbes reported on the following matters.

2 Neuroscience Curriculum

3 Adopted curriculum for a Neuroscience course in the Psychology
4 Lab. This course allows the Psychology Lab to have a second year
5 program and we currently have a pilot program with two students.

6 School Wide Focus on Assessment

7 This year CART teachers are focusing on assessment – can a student
8 demonstrate what they know. Teachers are assessing student learning
9 on a rubric that is backed by over five years of research. Instead of a
10 100 point exam on Friday students are given a 2.5 based on what they
11 can demonstrate to their teachers – 5 out of the 10 labs are now using
12 this rubric for assessment.

13 Susan Fisher explained that the grading system that has been used in
14 the past really penalizes students if they get one bad grade. In other
15 words if a student does poorly on the first test of the year they cannot
16 achieve an A and it ends up being about the test rather than about the
17 learning. With this rubric a student can show that they have learned
18 and understand the material and can demonstrate mastery. The rubric
19 allows students an opportunity to continue to work and demonstrate
20 mastery – it is about the learning instead of about the grade.

21 Cathy Frost asked if instead of getting 95% the student receives a 3.5.

*Dean of Curriculum
and Instruction*

22 John Forbes explained one scenario. With eighteen weeks per
23 semester, say the first week a student gets 60% which is a D, that
24 student is in the D range for the balance of the year. With the new
25 system you don't average student scores at the end, it is the
26 measurement of the level of knowledge you demonstrate based on all
27 of the assessments during the semester.

28 Richard Lake stated that this seemed like for the student that knows a
lot the grade is being watered down in order for another student to
demonstrate knowledge by the end of the semester.

John Forbes responded that we do have students that come to CART
day one and they understand every bit of the content and taking it to
the next level; instructors provide projects above and beyond for
those students providing another layer to increase their learning.
With the new rubric students demonstrate what they know.

Richard Lake asked if the staff felt an exam doesn't measure what a
student knows.

John Forbes responded that an exam is only one assessment of student
learning.

Richard Lake stated that if a student is achieving all the way through that's
just the way they are, but conversely if a student goes along and goes along
and then excels at the end – is that the same?

1 John Forbes explained that in the traditional system students are graded on
2 how they turn homework in; or if students come to class on time; but that is
3 not telling us how much the student really knows based on the standards of
4 the course.

5 Richard Lake suggested that maybe teachers need to re-assess how they
6 give the points because it is ridiculous to give points to students for showing
7 up.

8 John Forbes clarified that the new rubric system helps teachers change the
9 way points are averaged. Students will be assessed on what they know and
10 how well they can demonstrate what they know. Instructors can help
11 students formatively understand the course of study. With the new system
12 students know along the way what the next step is rather than waiting until
13 Friday and taking an exam that supposedly measures that they know.

14 Betsy Sandoval asked if the new rubric was working.

15 John Forbes responded in the affirmative.

16 Richard Lake asked how we know it is working.

17 John Forbes responded that some of the indicators are that teachers are
18 more engaged and figuring out what the students do not know and
19 demonstrating at the end of the day that they do know it. Students have a
20 tendency to care about points rather than learning. Typically, one week
21 before the end of the semester students are approaching teachers asking
22 them to give them extra credit work so they can raise their grade. With the
23 new system students know they have to prove mastery and demonstrate
24 their knowledge and both teachers and students are focused on that goal.

25 Larry Fortune asked if teachers still grade on a “curve” and stated that
26 coming from the private sector if he couldn’t give every student an A at the
27 end of the semester he would be disappointed in himself and his inability to
28 convey the instruction to the students.

29 John Forbes stated that the teacher teams have had similar discussions and
30 compare notes from lab to lab.

31 Richard Lake stated that as a lay person and a member of the community he
32 wondered where the dialogue had been prior to implementing such a
33 change, and further stated that this change had been implemented without
34 any input or involvement from any of the school board members in the
35 decision.

36 John Forbes responded that as a school board member you are
37 looking at the annual benchmarks and other assessment systems and
38 this rubric is the next layer of discussion. The rubric is a way of
39 including formative assessments, like a coach who assists athletes in
40 getting to the next level, only in the classroom helping students get to
41 the next level.

42 Betsy Sandoval asked what a student would do to get beyond the top
43 number on the rubric.

1 John Forbes stated what a great discussion that would be to have with
2 students.

3 Betsy Sandoval asked how many students might get discouraged by
4 doing everything to get to the “3”.

5 John Forbes responded that teachers have said they now have
6 students that are not giving up and they are pushing up because there
7 is a next level to go to and it is not beyond their reach. Quite frankly,
8 we expected too little from the students in the past because they
9 mastered that 100%, just what we presented in class. This system
10 challenges the students more as students are asking how do I connect
11 my knowledge that I have received across the subject areas.

12 Richard Lake stated that he felt students need to learn theory and that
13 is what always concerns him, further stating that in his profession
14 there is a deficit because people don’t understand the theory behind it.
15 Mr. Lake further stated that in his opinion whether it is a science class
16 or whatever, it is all theory, one must be able to grasp and understand
17 the theory. Richard Lake stated that he was surprised from his own
18 children going through their process and schooling to hear that
19 teachers are so concerned about giving kids points for this, that or
20 whatever, I know points has never been an issue, it’s always been
21 learning and understanding, the results of which are success – an A or
22 B – they weren’t worried about they had 425 points and needed to get
23 to 485, to me it feels like we are taking a step back.

24 David Cash clarified that the predominant grading scale in the
25 average classroom is points and those points are posted on the wall
26 and those points become what the students care about, i.e. how many
27 more points do I need to get to A or B or whatever. The sad factor in
28 utilizing a grading system like that is the power of a zero because a
zero can relegate a student to an overall D or F regardless of what
they understand by the end of the semester.

29 Richard Lake responded that he felt the student should be penalized
30 for a poor grade and should never achieve an A because of it.

31 David Cash responded that it shouldn’t be capital punishment, the
32 philosophical discussion at CART is student responsibility, follow
33 through, and the grades – if the decision is what we are really mostly
34 focused on is what do the students know and what do they know how
35 to do, then those stubbed toes don’t count against them.

36 Richard Lake stated that students have to know there are
37 consequences, not that it means a student quits either, the teacher has
38 to create the ability for the student to persevere.

David Cash stated that the bald reality is that kids that are faced with
that tend to give up, they see the chart and they know they can never
get a passing grade so they say, I’m done, I stop, I’ll make it up in

1 summer school.

2 John Forbes clarified that tests are given at CART but that
3 assessments also include presentations and opportunities beyond the
test to demonstrate student knowledge of the subject matter.

4 David Cash stated that oftentimes we mix those things up, that is the
5 idea of what it takes to work hard and what do I know, it is important
6 for us to realize those are very discreet things. I know you have kids
7 that are “slackers” but through some ways they are able to
8 demonstrate knowledge – the private sector may say, I’m more
9 interested, I want them to be able to work hard, turn things in on time,
demonstrate responsibility. We are grappling with a conversation
that is so difficult and that is how do you deal with knowledge and
understanding and the hard work.

10 Richard Lake stated that it is the teacher that knows how to teach
11 students, the teacher knows where their heart is and their attitude and
12 it is the teacher’s responsibility to make all that work together for
13 student success. Richard Lake further stated that to him a teacher
14 must be a gifted person who possesses a God-given talent to convey
15 information in a way that people can understand. We entrust our
16 students to those teachers that have that ability to make the best out of
the student. When you have a slacker student the responsibility has
to be share with the parents and that is our dilemma. Richard Lake
thanked the administration for the explanation stating that he thought
the grading system was being watered down but now that we have
discussed it he better understands the goal of the rubric.

17 John Forbes stated that if there is one thing you do not want to touch
18 it is the secondary teacher’s grading system.

19 David Cash agreed.

20 Michael Hanson also agreed stating that the secondary teachers do
21 not know how to have that discussion.

22 Betsy Sandoval asked if the staff was monitoring the process and
23 would report back to the Board.

24 Susan Fisher responded in the affirmative. Susan Fisher further
25 stated that the lab that she considers to be one of the best labs at
26 CART has been using this rubric for years – this is the lab where a
27 student cloned a carrot, that is what this grading system has done for
those teachers it opens everything up for every kid, it says as far as
you can go we will try and take you there. Very few

28 Cathy Frost asked if teachers at any of the traditional high schools
were using a similar rubric.

David Cash responded in the affirmative stating that he can guarantee
that Clovis Unified School District teachers are using this type of

1 system, some of them at least.

2 Michael Hanson agreed that teachers within Fresno Unified School
3 District were also using this type of rubric system.

4 Richard Lake stated that student success was because of the teacher
5 and the subject matter, not this chart or grading system.

6 Michael Hanson stated that the rubric represents the backdrop for the
7 learning, it opens up a rich conversation where students begin to have
8 analytical discussion.

9 John Forbes stated that the rubric he had shared is the general rubric,
10 for example the Biomedicine Lab rubric would include what the
11 student must master this week in terms of the simpler concepts; then
12 what must be mastered in the more complex areas and apply it to get
13 to the 3.0; way beyond what is taught in the classroom. This rubric
14 helps teachers and students understand what they have to attain to get
15 to that grade.

16 Michael Hanson clarified that it is the ‘of’ versus ‘for’ learning – a
17 student takes an end of chapter test and gets an A – that is an
18 assessment of learning but it is in static time, we are moving beyond
19 that by having a rubric where a teacher engages with a student and it
20 becomes an assessment for learning – we aren’t done with this yet
21 because we haven’t finished yet.

22 Larry Fortune interjected it is an income statement instead of a
23 balance sheet.

24 Michael Hanson stated that he guaranteed that if a person visited a
25 Clovis Unified or Fresno Unified classroom and the teacher was
26 using this rubric you would find a very involved and outstanding
27 teacher.

28 David Cash agreed stating, “Absolutely, or they wouldn’t have the
nerve to do it.”

CAHSEE

One hundred and forty students that are attending CART have not
passed one or more sections of the CAHSEE test. Of those about six
students have never taken the CAHSEE because they came from out
of State and were attending a private school and have now returned to
public school.

Michael Hanson asked if the targeted students could be flagged on
the CAHSEE data.

John Forbes responded that the targeted students would be part of
Susan Fisher’s report.

Counselor’s Breakfast

The annual Counselor's Breakfast was held on Thursday, October 22nd to kick off student recruiting. This year a number of impressive CART alumni spoke to the counselors.

Toolkit Update

The staff is working on refining the content of the Toolkit for Teachers materials and putting it on a DVD.

Mini-Notes

CART students are piloting fifteen of the Hewlett Packard Mini-Notes. John Forbes thanked Fresno Unified School District for helping CART procure the Mini-Notes at \$400 each.

Perkins Allocations

Both Clovis and Fresno Unified School Districts have included CART in their Perkins Allocations Plans so CART will benefit from that and we are thankful to both school districts.

Susan Fisher shared the following information.

Chief Operating Officer

Reviewed Current Enrollment

CLOVIS AM	FRESNO AM
Buchanan..... 118	Bullard 95
Clovis East 99	Edison 91
Clovis High 110	Fresno High..... 47
Clovis North 20	Hoover 68
Clovis West 81	J.E. Young..... 4
Enterprise 1	McLane 33
Gateway 2	Roosevelt 54
	Sunnyside..... 39
Total CUSD AM 397	Total FUSD AM 381
CLOVIS PM	FRESNO PM
Buchanan..... 53	Bullard 40
Clovis East 85	Cambridge..... 6
Clovis High 173	Edison 16
Clovis North 17	Fresno High..... 29
Clovis West 68	Hoover 26
Enterprise 2	J.E. Young..... 1
Gateway 3	McLane 25
	Roosevelt 61
	Sunnyside..... 51
Total CUSD PM..... 367	Total FUSD PM..... 255
GRAND TOTAL AM 764	GRAND TOTAL PM..... 636

Enrollment History

	Aug. 2003	Aug. 2004	Aug. 2005	Aug. 2006	Aug. 2007	Aug. 2008	Aug. 2009
CUSD	615	682	639	707	710	755	764
FUSD	402	482	309	492	592	638	636
Other	1	2	6	4	8	0	0
Total	1018	1166	954	1203	1310	1393	1400

	Aug.	Aug.	Aug.	Aug.	Aug.	Aug.	Aug.
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	2003	2004	2005	2006	2007	2008	2009
Buchanan	166	173	208	173	181	198	162
Clovis East	172	197	143	200	160	157	169
Clovis North							32
Clovis West	129	136	107	132	160	162	133
Gateway Enterprise	4	8	5	5	6	9	10
CUSD Total	615	682	639	707	710	755	764

	Aug. 2003	Aug. 2004	Aug. 2005	Aug. 2006	Aug. 2007	Aug. 2008	Aug. 2009
Bullard	79	98	101	127	151	149	134
Cambridge	0	0	7	2	8	11	6
DeWolf	0	0	0	1	0	0	0
Edison	40	31	18	48	69	82	102
Fresno	99	79	61	50	53	73	71
Hoover	61	36	27	65	94	112	79
JE Young	3	3	1	5	8	7	5
McLane	37	52	19	72	83	48	54
Roosevelt	62	71	37	51	56	83	103
Sunnyside	100	112	38	71	70	73	82
FUSD Total	402	482	309	492	592	638	636

	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Bullard	5					
Edison	2					
Fresno	4					
Hoover	5					
McLane	1					
Roosevelt	2					
Sunnyside	9					
Cambridge	4					
Total	32					

Labs Assigned

Environ.	6
Econ./Fin	9
Law	9
Marketing	5
Bioeng.	1
Network	2
Total	32

AM/PM Session

AM	11
PM	21

Attendance

0 absences	59%
1 absence	22%
2 absences	13%
4 absences	3%
7 absences	3%

Pilot Student Data

Reviewed progress thus far for the students in the Pilot group.

School	Lab	Absences	Grades to Date	Status
Hoover	Econ./Finance	1	CDBC	
Hoover				NO SHOW
Bullard	Law	8	FCDA	
Bullard	Law	7	FFFA	
Sunnyside	Environ.	6	CDCA	
Sunnyside	Econ./Fin.	4	CCDC	
Hoover	Law	3	DCDA	

1	Cambridge	Marketing			NO SHOW
	Roosevelt	Marketing	7	FCDA	
2	Hoover	Econ./Fin.	2	CDCB	
	Cambridge	Environ.			DROP
3	Roosevelt	Environ.			DROP
	Fresno High	Law			DROP
4	Sunnyside	Environ.	5	BCCA	
	Edison	Multimedia			DROP
5	Edison	Econ./Fin.	0	BCCB	
6	Bullard	Environ.			NO SHOW
	Sunnyside	Environ,	0	BCCA	
7	Fresno High	Networking			DROP
8	Fresno High	Law	7	FFFA	
	Sunnyside	Econ/Fin.			DROP
9	Bullard	Econ./Fin.			DROP – MOVED
10	Edison	Econ./Fin.			DROP
	Sunnyside	Law	6	DCDA	
11	Fresno High	Econ./Fin.			RETRAC TED
12	Roosevelt	Marketing	3	DDBA	
	Bullard	Econ./Fin.	6	CCCB	
13	Roosevelt	Environ.			DROP
	Sunnyside	Econ./Fin.	3	CDCB	
14	Sunnyside	Econ./Fin.	6	CCBB	
	McLane	Marketing			DROP
15	Bullard	Marketing	0	DCCB	
	Bullard	Environ.			DROP
16	Hoover	Law	6	CBCA	
	Bullard	Law	3	CBCA	
17	Sunnyside	Law	10	FDFA	
	Hoover	Econ./Fin.	0	CCCB	
18	Cambridge	Marketing			DROP
	Cambridge	Networking			DROP
19	J.E. Young	Environ.	16	BCCA	
	Fresno High	Environ.	6	ABBA	
20	Sunnyside	Econ./Fin.			NO SHOW
21	Sunnyside	Econ./Fin.			NO SHOW

22 Larry Fortune commented that on average the students seem to be
23 progressing straight up.

24 Susan Fisher responded in the affirmative stating the norm for these
25 students has been straight failing grades so we are pleased to see their
26 progress for the six week grading period. Susan Fisher pointed out
27 that the students have not yet completed a project but it is anticipated
28 their grades will continue to improve. Susan Fisher reiterated that the
students have not been identified to teachers and noted that some are
getting A grades and have not missed a day of school.

Michael Hanson requested the names of the students so he can follow
up to determine why they dropped CART, noting that there is

1 something to be learned from students who would entertain the idea
2 of attending CART and show up but then drop.

3 Susan Fisher agreed noting that she wanted to determine when and
4 why they dropped and assured Superintendent Hanson that she would
5 get back to him with that information.

6 Cathy Frost stated that it would also be interesting to see if their
7 attendance improves as their grades go up.

8 David Cash asked if the staff would be doing a focus group with
9 these students and stated that he would like to sit in on that. Michael
10 Hanson agreed.

11 Susan Fisher pointed out that the target student with the most
12 absences is #16 who is on maternity leave, but she has a B, two C's,
13 and an A grade.

14 Larry Fortune stated that of all the good things we know CART does,
15 success with the target students could absolutely be the best thing, the
16 "clap of thunder".

17 Michael Hanson commented on the student with three A's and an F
18 that is still attending.

19 David Cash stated that there is something happening at CART that
20 the students were not experiencing at their traditional high school
21 site.

22 Foundation Fundraising

23 Susan Fisher explained that discussions have been taking place on
24 how to raise funds and rebuild the Foundation. Currently looking in
25 to selling CART apparel, i.e. shirts and T-shirts. The Marketing Lab
26 put together a survey and 900 students participated to determine what
27 students would buy and the types of shirts they would pick and we
28 are reviewing the results of the survey and will come to the Board
with an information item to start selling CART items to build up the
Foundation funds. Susan Fisher reported that there are also a couple
of potential sponsors and the

29 Donors/Sponsors

30 Susan Fisher reported that CART has a couple more potential
31 sponsors and also working on establishing an alumni group that
32 would pay annual membership dues.

33 California State University

34 California State University Fresno is now offering a strand to train
35 teachers in project-based environments and they will place student
36 teachers at CART next semester. The entire teacher training class
37 visited CART.

38 Michael Hanson asked if instead of just providing the "Toolkit for

1 Teachers” if anyone had considered making CART its own teacher
2 credentialing program.

3 Susan Fisher asked if you had to have charter school status to do a
4 credential program.

5 Michael Hanson and David Cash affirmed that you can be a
6 university professional development campus and it is not necessary to
7 be a charter school.

8 Members of the public were given an opportunity to address the Board.
9 There was no one present to address the Board.

10 The meeting adjourned at 5:09 p.m.

11 Respectfully Submitted,

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Larry Fortune, Chairman
CART JPA Board of Directors

CART:10.13.09.ac

**PUBLIC
PRESENTATIONS
ADJOURNMENT**