

## Letter of Nomination

March 6, 2017

Committee Members - Ralph Stair Prize in Innovative Education  
Office of Faculty Development and Advancement  
115B Westcott  
Florida State University  
Tallahassee, FL 32306-1481

**Dear Provost McRorie and Fellow Committee Members;**

It is with great humility that I submit this application to be considered for the Ralph Stair Prize in Innovative Education award for the work I have done with CPALMS ([www.cpalms.org](http://www.cpalms.org)), a free online platform of software tools and instructional resources for K-12 teachers and students. While I do not work directly with students, my work is directly supporting millions of teachers around the world for teaching mathematics, science, engineering, and English language arts. CPALMS is currently the most used education website in Florida and one of the most utilized website of its kind around the world. It was also adopted by Florida to become the official source for the K-12 education standards and course descriptions.

CPALMS has an average of more than 70,000 users per school day using the tools and resources we have available. Approximately 60,000 users per day are teachers and the remaining 10,000 are students. This adds up to more than 20 million visitors a year and close to a billion hits during the same time. These visitors come from more than 220 countries and territories around the world. More than 133,000 Florida teachers are constant users on CPALMS and they love it. Our users have generated more than 300 million resource downloads! We had more than 50 million resource downloads within the first three months this school year. These are staggering numbers that are growing very rapidly. In Florida, teachers have created more than one million curriculum plans in the last three years alone using the CPALMS CMAP app.

What is most important to me beyond any of the usage statistics is providing equal access to high-quality instructional and educational materials to educators regardless to where they are. Teaching is the noble profession but teachers often find themselves with no support, no time, and not enough financial resources to be most effective particularly in teaching math and science. CPALMS helps overcoming these boundaries by providing high-quality and a variety of instructional materials aligned to the objective (standards) and free to use. It has been so effective that now and for the first time some school districts are switching away from textbooks and primarily using CPALMS. This trend is growing and will save them a lot of funds that can be very helpful to advance from the status quo.

One of the most important aspects of CPALMS is that it is completely free to our users and equally accessible by all teachers. It is difficult to estimate the exact dollar benefit this has provided to the users. However, if we attempt to do so, it would add up to several hundreds of millions in US dollars saved for teachers and schools. Of course, these metrics are not our priority nor our motivation but it is important to keep in sight a solid return on investment on dollars we receive from the funding agencies. We have competed for all the grants we received to build CPALMS and everything else we do around it. I believe our competitiveness is the result of generating a high return on the funding we receive.

In late 2007, I came up with a plan to develop a platform to support them but I was told by several that this won't be used or it cannot be done by many of my colleagues including my director and supervisor at the time. With no funding and working on it at my personal time, I created a basic version that was launched in 2008. Very quickly, teachers started to use it and it started to grow. Because of CPALMS, I have been able to compete and receive more than 50 grants in the last seven years and support FSU's research mission by generating almost \$70 million in external funding. I was able to build and sustain a research and development team that helped me propel CPALMS to what it is today.

Growing up, I never imagined working at a university or in education. Today, I cannot imagine not to continue supporting our teachers and students. My motivation and dedication has only grown over the years and I am extremely lucky to have been involved.

Thank you for considering me for this award and for the Stair family for making it possible.

Sincerely,

Rabieh Razzouk

Director, Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM)  
Associate Director, Learning Systems Institute  
Florida State University

## About the CPALMS Innovation

CPALMS is a free online toolbox of information, home for 12,000 high-quality vetted instructional and educational resources, and has 16 smart software applications that support K-12 educators and students across Florida and the world. For teachers, CPALMS has become their primary source for instructional planning, accessing high-quality instructional resources, and professional development. Curriculum planning tools and instructional resources existed before CPALMS, our approach and combination of tools, process, and high-quality is what makes it unique.

In 2007 when I started planning CPALMS, I noticed three main deficiencies that I wanted to help with: 1) teachers don't have financial resources or time because they teach 5-6 sessions/day; 2) they often don't have access to high-quality instructional materials that are well aligned to the standards; 3) they are not always placed in a position to teach what they are best experienced and trained to do; and 4) parents and students don't have access to high-quality supplemental resources that they can access to use at home or sometimes available but not in sync with what they are studying in the classroom.

We now have a system that allows the teacher to know what is required for them to teach, access high-quality instructional materials for free and specific to the standards they are required to teach, and tools that do work for them around the clock. CPALMS is now the teacher's personal assistant and it is helping with all the areas identified above. To achieve this result, we needed to innovate and develop a sophisticated software application and rigorous content. The following summarize the different areas of innovation that led to what CPALMS is today:

Content Development: All our content is developed by teachers and for teachers. We engage teachers in a professional development process to help them learn how to develop curricular resources and provide them access to content access to expert curriculum developers and content experts (university faculty) to create the best resource that eventually get shared with others. The participating teacher receives one-on-one professional development. More than 14,000 Florida teachers have been through this process. All our resource authoring tools support research-based curriculum development helping us infuse the knowledge available from existing research and enabling us to expand on that by doing research ourselves.

Variety and Unique Content: Most of the digital resource repositories available accept random resources from anyone and the majority of them are usually links to other websites. On CPALMS, 90% of the content is unique to CPALMS and only available on our website and tools. We also develop resources in collections enabling the teacher to transform their teaching. For example, we have a collection of 600 engineering lessons all constructed in the same research-based model eliciting activity format. If a teacher uses one of these and would like to keep using them, they will find many more to pick from. It is not a one-time thing but rather allow them to change their complete instruction. Similarly, we have a complete system for math formative assessment,

collection of 500 videos connecting real-life application and professions to the standards, and much more. In addition, we created a library of 1,300 mathematics formative assessments and rubrics covering each of the math standards making. Currently, we are creating interactive online learning modules for students to supplement classroom instruction. We currently have close to 400 of these and our target is to have thousands of them.

Research: Our development process is infused with a strong research practice. Before we develop tools or resources, we engage in a doing research to understand how it was done before and what is the best approach to take. After we start, we pilot and do large research studies to see if what we have helps or not. If not, we revise or remove then go through the process again. We have done more than 10 randomized control studies and more than 15 evaluation studies so far and constantly improving the work we do based on that. I think this process is often ignored by a lot of textbook publishers or software developers of tools who are engaged in similar work.

Review and Quality: There are many resource repositories but CPALMS is the only one where each and every published resource has gone through a rigorous review process. On average, each resource is reviewed five times before it gets published. This adds up to more than 15hrs of review for each resource we review. We have reviewed more than 50,000 resources but eventually only publish the best. Our attention to quality is unprecedented and still not equally replicated by anyone else. Our review rubrics are rigorous and detailed. Our reviewers are trained and mentored until they become experts when their reviews start to count more. We built a review system of rubrics, training, and software that is very unique to help us achieve quality. I believe this is one of the primary reasons why CPALMS enjoys more users than other websites.

Repository Technology: CPALMS has the authoring tools, a full online review system and dynamic rubrics, human curated meta data, all vetted content, and aligned to specific learning objectives. What enables it all is a technology we custom developed to achieve the results. We now have the capacity to make intelligent recommendations for users based on what they teach and when they teach saving teachers a tremendous amount of time. Most of the resource repositories do not include resource authoring and review systems but rather focus on becoming a bigger database of resources. This is what differentiates CPALMS from others.

Curriculum Planning: One section of CPALMS is called iCPALMS and that is only accessible to Florida teachers at this time. iCPALMS offers access to 16 software applications that help the teacher in planning, professional development, resource development, and recommendations. Prior to this tool, most teachers did planning using Word and that required a tremendous amount of time yet it was constantly out of date. With the CMAP tool, CPALMS supports the teacher doing their plans but also learn from them when, where, and what they are teaching then create smart just-in-time recommendations for them to use. This saves them time and money but also empowers them to access the best resources for use in the classroom.

Recently, we added features that enable a teacher to share a website with their students and/or parents enabling the system to recommend and provide educational resources the students can do at home to support the learning trajectory they have in the classroom. The teacher activates (two clicks) it at the beginning of the year and our software will create and maintain the website

for each user and provide them customized resources such as tutorials, educational games, simulations, videos, etc. The students can advance ahead of the class or go back to practice more. Now, every parent can know what their kid is studying at school and have access to materials that they can use with their own children. There is no other tool that currently does that.

Turnkey Solution: Most of available systems before CPALMS have either focused on being a repository or about curriculum planning but not both. CPALMS provides a turnkey integrated suite of tools and content making it unique and desired.

Artificial Intelligence: The goal was to make the teacher feel that CPALMS is their personal assistant. By learning about the teacher, what they do, what they use, etc. we are now able to customize suggestions, automatically bring in information and resources to their without them having constantly search. CPALMS is working around the clock to customize each user's experience and provide resources to support student learning just-in-time based on what they are studying. The goal has mostly become a reality but we are still at the beginning.

New Innovations: I have been working on several new innovations relating to CPALMS. One is 3D printing to create scientific experimentation tools and hands-on manipulatives for teaching math and science. We are in our fourth year with this new area, we have a production lab with 100 3D printers that we used to create more than 100,000 kits of 3D printed manipulatives and gave them away to teachers across the state. We additionally created hundreds of lessons, and commercialized this curriculum so it is now available for everyone to use.

In 2010-11, I was invited to be one of four that will help the US Department of Education design a learning resource repository for the whole nation. The system called Learning Registry was launched in Nov 2011 by Secretary Arne Duncan where I had a front seat to hear him praise the work we have done with CPALMS. Since then, an independent study by Rand Corporation have compared CPALMS to other systems alike and found it superior in terms of quality, engagement of teachers, and the usage. In 2015, CPALMS was selected to be one of the best projects funded by Race To The Top and was highlighted in a report by the Center for American Progress as an example of that.

CPALMS has accomplished a lot of the initial plan that I had for it in the last ten years but we are still far away from completing the mission. I am thrilled and looking forward for the next ten years of innovation for supporting our K-12 educators and students.

I couldn't have done this without the support of my team, my directors, and Florida State University. It has been a humbling and fulfilling experience. On a daily basis, we get dozens of thank you notes and praises from students, teachers, administrators, and officials for making it freely available to all. Notes that make us all proud and keeps us going because I still believe that we barely scratched the surface and our work is just beginning.