CENTER FOR ADVANCED PROFESSIONAL STUDIES: INNOVATION IN PARK CITY

RESPONSIBLE CITIZEN SUMMARY

Background

- Student-centered education – which every child deserves – depends on adequate school choice and innovation.
- Increasing state and federal regulations result in standardized education that is counter to a student-centered model.
- Park City School District adopted an innovative education program, the Center for Advanced Professional Studies (CAPS), patterned after the original in Kansas.
- The innovative CAPS public school program is spreading across the country, but mostly in the Midwest.

What's at stake?

- Student-centered education for public school students.
- School choice for public school parents.
- Innovation in public school programs.
- The opportunity to compare innovations against the status quo.

What's next?

- Decision-makers should promote policies that allow flexibility in public schools.
- Public school districts should actively seek innovative programs that address the needs of the diverse group of students they enroll.
- Researchers should analyze the effectiveness of the CAPS program in achieving a student-centered education and college and career readiness.

Responsible Citizenship™

IMAGINE

Imagine a student – frustrated with school and unsure about college because of dyslexia and attention deficit disorder – finding success in an innovative high school program and gaining admission to the University of Maryland.[1]

Further imagine a high school library where two students chat with a business client. Other students sketch tire rack models on a whiteboard, code flight simulations of a nearby airport, draw headphone ideas for Skullcandy, build designs for The Leonardo on a 3-D printer, and create a machine for Smithsonian museum tours.

None of this is hypothetical. All of it has been taking place at the Park City High School's Center for Advanced Professional Studies (PCCAPS) program,[2] one of 13 similar programs across the country modeled after the original founded in Blue Valley Schools in Overland Park, Kansas.[3]

This paper outlines the BVCAPS program in Kansas and the PCCAPS program in Utah; analyzes the benefits and limitations of PCCAPS; discusses CAPS implementation generally; and recommends further research questions.

BEGINNINGS OF THE CENTER FOR ADVANCED PROFESSIONAL STUDIES PROGRAM

In the 2009-10 school year Kansas' Blue Valley Schools began the original Center for Advanced Professional Studies (BVCAPS) program.[4] It was designed to give high school students personalized, hands-on learning through real-world industry experience as a way of preparing youth to be successful in college and in the workforce.[5]

However, CAPS should not be confused with a trade or vocational school.[6] One of the main purposes is to expose students to career fields through profession-based environments and experiences.[7]

There are several moving pieces to the program: the students who consist of juniors and seniors; the business partners with an industry need; and instructors who guide the course.[8] Mentors with business expertise are also part of the process.[9] A mentor might be an individual associated with the business partner, or another volunteer, who offers to support students through the process.[10] Learning takes place in the interactions between these pieces. For example, an actual business brings to BVCAPS a non-mission-critical industry question, need, or problem. Working with instructors and mentors, a small group of BVCAPS students finds solutions for the business need. Using profession-based and inquiry-learning methods to create solutions, students are able to learn industry-specific content, STEM (science, technology, engineering, and mathematics) concepts when relevant,[11] and the professional skills needed in college and careers.

In the BVCAPS program students choose from among six different strands: bioscience; business, technology and media; engineering; human services; medicine and health care; and an accelerator strand.[12] Despite the different strands, all learn to problem-solve and practice the "soft" skills they miss in the traditional classroom setting. At the same time, industry leaders are exposing high school students to professions, training the next generation to meet skill gaps, gaining new insights, and getting help in meeting workload challenges.[13] The program is meant to be mutually beneficial for students and business partners.

All juniors and seniors living within the Blue Valley attendance boundaries are eligible to enroll in the high school program, including public school students attending the Blue Valley comprehensive high schools, as well as private, parochial and home schooled students.[14] CAPS courses meet for two to three class periods a day, five days a week, for a semester.[15] After completing one semester of the program, students are eligible to apply for a CAPS internship.[16] At BVCAPS, coursework can count toward high school core or elective credit.[17]

All BVCAPS course work is available for some form of college credit or post-secondary pathway.[18] For example, completion of the coursework in Foundations of Medicine II: Research and Innovation allows students to sit for the Kansas State CNA Exam at the end of the semester.[19]

Another example is the "Degree in 3" option made available through a collaboration between the University of Kansas, Johnson County Community College, and the Blue Valley School District.[20] Students who follow specific "Degree in 3" requirements can use their CAPS coursework to opt into a 3-year degree bachelor's program at the University of Kansas.[21] Requirements include developing a four-year academic plan with a counselor and applying to the Degree in 3 program at the end of their freshman year of high school.[22] Students take approved JCCC courses while in high school and finish the remaining associate's degree requirements once they graduate.[23] Students then apply for admission to KU and are able to graduate in just three years.[24]

Statewide Kansas education policies incentivize higher education to collaborate with innovative high school educational models. For example, Johnson County Community College and Baker University offer dual en-

rollment credit for BVCAPS coursework.[25] Additionally, in 2012 the Kansas State Legislature enacted the "Excel in Career Technical Education Initiative" (SB 155), which made it possible for high school students to qualify for free college tuition in approved technical courses offered by Kansas technical and community colleges.[26] The initiative also provides incentives for districts that graduate students with industry-recognized credentials in high-demand occupations.[27]

An increase of participation in technical courses may suggest the initiative has been successful in encouraging high school students to pursue these concurrent options and credential programs. Prior to the initiative, there were far fewer students participating in technical courses. For instance, during the 2010-11 school year only 3,475 students were participating in technical courses.[28] The next year, 3,870 students were participating, about 10.2 percent growth.[29] After the 2012 initiative, 6,101 students were participating in technical courses during the 2012-2013 school year, 36.6 percent growth from the year before.[30] By the 2014-2015, there were 10,390 students participating in the courses.[31] From the inception of the legislation, participation in technical courses has grown by a total of 41 percent.[32] One of the most important results of the demand for concurrent enrollment is improved alignment between secondary and postsecondary institutions.[33] Legislation that encourages alignment between high schools and post-secondary education can support innovative schooling efforts.

Feedback from the Blue Valley CAPS program has largely been positive so far. BVCAPS and its students have earned a number of awards and distinctions. CAPS received the 2013 Incubator Innovation Award and the 2015 Impact Award from the *Kansas City Business Jour-*

nal.[34] The CAPS Sensory Design Chair created for autistic children received the prestigious 2011 Edison Gold Award in the Higher Education Segment of the Living, Working, and Learning Environments category.[35] The program has been highlighted in a number of news stories.[36] In November 2015, the White House recognized the CAPSNetwork, started by BVCAPS to share resources with districts, as an example of innovation in preparing students for today's economy and success in college and careers. [37]

CAPS PROGRAMS SPREAD NATIONWIDE

Currently there are 12 existing CAPS programs across the country, representing 28 school districts, and another five that will be launched at the start of the 2016-2017 school year.[38] All of these programs are part of the CAPSNetwork, a group of districts and states that exists to share resources while building their own CAPS programs. The BVCAPS website hosts CAPSNetwork links and information.[39] It lists the five CAPSNetwork Core Values, three CAPSNetwork differentiators, and CAPSNetwork members and partners. The five Core Values are: profession-based learning, professional skills development, self-discovery and exploration, entrepreneurial mindset, and responsiveness.[40] The three differentiators are professional skill development, business and community partnerships, and authentic, real-world projects and internship opportunities. [41]

Currently operating CAPS programs listed on the CAPS Network website exist in the following places: Affton Advanced Professional Studies (A@ps) in St. Louis County, Missouri; Blue Valley Center for Advanced Professional Studies in Overland Park, Kansas; Bentonville Public Schools Professional Studies Center in Bentonville, Arkansas; Greater Ozarks Center for Advanced Pro-

fessional Studies (GO CAPS) established among 11 different districts in Missouri; Northland CAPS established among seven school districts in North Kansas City, Missouri; Park City CAPS in Park City, Utah; Spark! in Parkway School District in St. Louis, Missouri; MET Professional Academy in Glendale, Arizona; Shakopee Public Schools in Shakopee, Minnesota; Topeka Center for Advanced Learning and Careers in Topeka, Kansas; VANTAGE Minnetonka Advanced Professional Studies in Minnetonka, Minnesota; and Westside CAPS in Omaha, Nebraska.[42]

Programs that will be starting in an upcoming school year will be in: Alexandria Public Schools in Alexandria, Minnesota; Cedar Falls Schools in Cedar Falls, Iowa; Elmbrook School District in Elmbrook, Wisconsin; Minnesota Center for Advanced Professional Studies covering two additional districts in Minnesota; and The School District of Washington, in Missouri.[43]

PARK CITY CENTER FOR ADVANCED PROFESSIONAL STUDIES

While CAPS programs are mostly found in the Midwest, Utah is one of the Western states to join the CAPSNetwork. At this time, only one of its 41 school districts has adopted the program.[44]

In the 2013-14 school year, the Park City School District began the Park City Center for Advanced Professional Studies (PCCAPS).[45] It functions a lot like BVCAPS. PCCAPS students work with instructors and mentors to meet the needs of a business "client" through projects in the following areas: engineering; software development and engineering for the innovator; digital design and interactive marketing; business strategy; and teaching in 2020.[46]

Many of its business clients are well known. Clients who are partnering with or have partnered with PCCAPS include: Caribbean Pacific Foundation, Skullcandy, Recycle Utah, Powder Mountain, Heber Airport, Park City Library, Ziing, Teeth First, IKOS, Swaner EcoCenter, RAMP Sports, Park City Racks, The Leonardo, Cycling Chicks, Peak Performance Baseball, and Rockhouse Toffee.[47] On average, the program develops 60 projects for 30 companies.[48]

Like in Blue Valley, mentors are individuals who have industry experience or expertise. They are often employed by businesses, self-employed, or retired from a related field.[49] Mentors guide students through their projects. The frequency of a mentor's visits to students varies.[50]

Any junior or senior who attends Park City High School can apply and enroll in the PCCAPS program.[51] Of the Class of 2015, about 23 percent participated in PCCAPS.[52] Data from a school survey for the Fall 2015-16 semester gives us insight into student demographics. Roughly 71 percent of PCCAPs students are boys, so only 29 percent are girls.[53] About 61 percent of those participating are juniors while 39 percent are seniors. The most popular course option is engineering, with roughly 37 percent of participating students taking the course. The next most popular is business, with roughly 27 percent. Participating students tend to have impressive academic achievement as well. About 73 percent of the students are also taking Advanced Placement courses. The vast majority of students, roughly 83 percent, plan to attend a four-year university after high school.[54]

Projects are given letter grades; the course is not pass/fail.[55] Coursework fills either elective credit or required

Computer Technology credit.[56] However, there are far fewer dual credit or college pathway programs in place at PCCAPS than in the BVCAPS. Currently engineering courses are offered for dual credit through Utah Valley University.[57] College credit is cheaper in high school, but not free. Students pay $5 per credit hour with a $35 application fee.[58]

THE BENEFITS OF PCCAPS

Choice. The PCCAPS program gives parents and students choice. Public school generally offers a one-size-fits-all model of learning that includes sitting at a desk for hours, listening to teachers present information, and taking standardized tests as a major part of assessment. The problem is, not all students are the same. Every student is different. The traditional sit-in-your-seat and listen to the "sage on the stage" model does not work for everybody. Even worse, the standard use of that model can stigmatize those who don't learn well this way, communicating to them that they're not smart.

In fact, according to a pre-survey report compiled for Fall 2015 PCCAPS, roughly 40 percent of the students enrolled in the program for the purpose of exploring a new or different kind of learning.[59]

Parents have the primary responsibility and authority to make educational choices for children. Some choose private schools or home schools, but many choose public schools. Hopefully, opting for public schools doesn't mean parents are opting out of any educational choice. Taxpayer money should be spent to teach students with a range of abilities and modes of learning. PCCAPS programs is an example of choice in public schools.

Student-Driven Learning. Additionally, hands-on education can ignite student-driven learning. Faced with real-world concerns, students and not teachers take the driver's seat. Students generate questions, formulate answers, make mistakes, seek advice from mentors, and create tangible products. Knowing their work has actual effects on local companies encourages self-initiative, problem-solving, critical thinking, working collaboratively, and a level of maturity. One PCCAPS student named Gates Lamb co-founded a business selling a triangle-shaped building toy similar to a Lego.[60] Lamb described the process that led to his success as "tireless trial and error."[61] Giving space for trial and error allows students to own their education.

Positive Results. Feedback from participants, parents and business leaders has been positive. Based on student surveys, 82 percent of PCCAPS students agree that their ability to organize a project has increased, 81 percent feel the skills learned in the programs will enable them to take leadership positions with peers in freshman college classes, 82 percent agree that they better understand how consultants work with clients, and 84 percent feel they appreciate the importance of brainstorming as a tool for focusing a team's efforts and scope of the project.[62] One student mentioned earlier, who was formerly struggling in school due to dyslexia and attention deficit disorder, said of the program, "I feel valuable here, which is huge for a teenager."[63] She said, "It's brought out the adult part of me that I didn't know I had."[64]

According to business client surveys, 96 percent of the participating business partners feel that PCCAPs is preparing students for professional careers by exposing them to the real world and teaching them critical thinking, problem-solving, oral and written communication,

agility and adaptability, accessing and analyzing information, network collaboration, and leading by influence, as well as using curiosity and imagination.[65]

One business leader that partnered with PCCAPS, Dennis Walsh, from Walsh Photographic Design, acknowledged the typical challenges he's had with interns and noted that, "many people are 'short-changed' by the educational process."[66] Walsh praised what's taught in PCCAPS, saying, "These are things that are very difficult to learn in the 'traditional' classroom even at the university level. In short, we are teaching skills that translate directly to future success."[67]

Parent surveys revealed that 90 percent of parents believe PCCAPS helped their child better define career interests, and 90 percent agree that the program taught students "soft" skills for functioning in a professional environment, among other positive effects.[68]

PCCAPS has also received positive state and national attention. In 2015, PCCAPS was recognized as one of three high schools in the nation to receive the FETC STEM Excellence Award for its STEM-related program.[69] Since STEM (science, technology, engineering, mathematics) education has become a national and state priority, this is good news.

It should be noted, however, that many of the positive benefits listed in this section are self-reported, anecdotal, or potential benefits. At this point it's still unclear how colleges view the program or factor the experience into admissions or scholarship applications.

THE LIMITATIONS OF PCCAPS

Technology. One significant limitation for PCCAPS is technology. Even the STEM-conscious, innovative Park City High School is not as up-to-date technologically as some might wish.[70] Roger Burrows, a PCCAPS instructor, said he'd estimate that the technology and CTE exams are about 15 years out of date.[71] Unfortunately, there is also a school-wide problem with educational websites or helpful software being blocked. One essential tool for PCCAPS is Internet access, and Internet limitations impede some of the work being done on high-tech PCCAPS projects.[72] In the Software and Technology Development strand there are significant access problems to application software like Solidworks, Unity 3D, Lightwave, or Sharepoint, all of which students could use to deliver a product and learn.[73] Additionally, students do not have the needed server to access for code development.[74] These challenges are a result of computer restrictions intended to keep students from accessing inappropriate content.[75] This very legitimate concern over access to unsuitable websites might be addressed by more creative IT solutions that are available but which have not yet been used.[76] For a program that relies on technology to meet client projects, this particular challenge can be a serious one. Another result of the current restrictive structure is a student culture of workarounds and an incentive to use illegal downloads or access.[77] More importantly, these challenges highlight how much growth is required in STEM education since one of the most innovative STEM programs in the state lacks so much technology. Prospective CAPS programs would likely need to address these limitations as well.

Lack of PCCAPS Awareness. Many administrators, teachers, counselors, state board leaders and parents

are simply unaware of the opportunities that the CAPS program offers.[78] Some also don't understand the technology field.[79] To understand the dynamic education process, it's important for decision-makers to see the program in action. Those who have made visits are generally impressed, including Utah Governor Gary Herbert.

In May 2014, Governor Herbert visited the school and seemed happy with what he found. He said, "If we can replicate this program in the other 40 school districts across the state, we would in fact raise the bar significantly when it comes to creating new business entrepreneurs, people who can think outside of the box using creativity and will be better prepared to compete in real world marketplace."[80] One major challenge, then, is exposing people to the program up close.

Yet another challenge is to counter the idea that PCCAP's success should simply be replicated in every district. Student, community, and business need should inform whether and how this model gets implemented elsewhere. Awareness of what the program is and is not can help in making thoughtful decisions.

Demographics. There is a challenge in getting more girls interested in PCCAPS. Currently, the program has more than twice as many boys as girls.[81] In general, women are underrepresented in STEM fields.[82] Recruitment for girls may increase the number of girls involved in PCCAPS and expose them to STEM-career options.

Lack of CTE or STEM exposure. Additionally, a lack of exposure to STEM fields in grades prior to junior or senior year may hamper student ability and interest in later grades. Even the grades that include STEM curriculum need improvement. New initiatives are being developed to possibly address this need.[83] Greater invest-

ment in earlier CTE or STEM education would support what the students learn in the PCCAPS program and may increase interest in programs similar to it.

Business Partnerships. The program requires local business partners and mentors. Without business need or business buy-in, students may not have meaningful projects. Additionally, local workplace desires and high-skill, high-demand areas is the launch point for crafting the curriculum.[84] These must be determined and facilitated before implementing the program.

Money. Some have expressed concern over the amount of money required for the program.[85] [86] Because the program is so new, accountability might also be a concern. Without a lot of data, it can be difficult to prove what outcomes are actually being paid for. It's important that a measureable payoff in student outcomes outweigh the costs of acquiring new technology and other expenses.

According to some residents, actual costs have far exceeded projected costs.[87] [88]

To implement PCCAPS initially, the program received $100,000 from the Park City School District, $20,000 from the Park City Education Foundation, and a $75,000 grant from the Department of Workforce Services.[89] According to the PCCAPS website, the program has received $306,550 in grants: Utah Department of Workforce Services giving $225,000, Park City Education Foundation giving $77,200, Park City Foundation giving $1,500, and Utah Valley University giving $2,850.[90]

Then in May 2015, the Park City Board of Education unanimously voted to allow the district to spend roughly $200,000 to move the program to the Park City High

School media center.[91] The balance is funded by the school district.[92] Courses use CTE funding.[93]

The CAPS Playbook for Implementation

In an effort to help other school districts implement similar programs, the CAPSNetwork created a 14-page "CAPS Playbook."[94] Inside are the nuts and bolts of implementation once a school or district decides that it has an interest in creating a similar program.

The playbook covers topics such as finding the right students, identifying the stakeholders, curriculum development, business partnerships, mentorships, internships, workspace and culture, concurrent credit and articulation agreements with institutions of higher education, teacher certification, and possible measures of success like student, parent, or business surveys.[95]

Not every aspect of implementation is covered in the playbook. One of the first and most important steps is to garner interest and support. For example, to bring the program to Park City the district invited business leaders, teachers, school board members, city and county council and commission members to join them for an in-person visit of BVCAPS in Kansas.[96] They also brought BVCAPS leaders to Park City to hold meetings for business leaders, teachers, school board members, city and county council and commission members, and parents.[97] Local industries that need more candidates or research may find it beneficial to partner with such a program, but messaging this benefit is crucial. Parents and other stakeholders also need to be aware of the program, its costs, opportunities and whether it is right for their locality.

The "CAPS Playbook" is not intended to prescribe to other districts an exact replica of BVCAPS.[98] As mentioned, a CAPS program may not be the best thing for every district. Ultimately, the CAPSNetwork is about access to resources. The playbook simply offers a framework that can be customized to local needs.

RECOMMENDED RESEARCH QUESTIONS

College and career readiness is one of the main touted benefits of the CAPS programs.[99] Unfortunately, because Park City CAPS is only at the beginning of its third year, there is little data about how PCCAPS students fare in college (or any form of post-secondary education) and in careers.

Several CAPS program websites assert that CAPS experience and projects distinguish students from their peers in college admissions. There are certainly anecdotes that suggest program completion helps students in college and career readiness. In November 2015, a news story highlighted three PCCAPS students who were admitted into the University of Utah's Business Scholar Program at the David Eccles School of Business.[100] They reported that much of what they submitted on their applications related to their PCCAPS experience.[101] Additionally, the Kansas Blue Valley CAPS website lists 45 colleges and universities that have written endorsement letters of the BVCAPS program.[102] [103] Utah's Brigham Young University and Westminster College are among those that endorsed the program.[104] Yet it's not clear what endorsement translates to as far as CAPS students being admitted to college programs, receiving scholarships, graduating with an employable credential, or entering the workforce.

While there are some immediate benefits for parental

choice, student-centered inquiry learning, and help to local businesses, further research should be done on long-term college and career readiness outcomes. Particularly in light of the costs of such a program, more information could help in deciding whether implementation makes sense in a certain area.

There are a number of different questions that could address the connection between PCCAPS (or other CAPS programs) and college or career readiness or post-secondary choices. Below are just four recommended research questions that may aid in finding a connection between PCCAPS and college or career readiness.

1. How many PCCAPS students begin a post-secondary program within one year of graduating from high school?[105]

2. How many PCCAPS students pursue a post-secondary program in the same field as their PCCAPS internship, project or experience within 10 years of their PCCAPS coursework?

3. How many PCCAPS students complete or graduate from a post-secondary program in the same field as their PCCAPS internship, project, or experience within 10 years of their PCCAPS coursework?

4. How many PCCAPS students enter a career in the same field as their PCCAPS experience within 10 years of their PCCAPS coursework?

Conclusion

This paper suggests that the Blue Valley CAPS and Park City CAPS are mostly success stories of innovation and choice in public schools. Innovation gives students op-

tions. Importantly, it gives cause for education leaders to question their assumptions about education.

However, this paper acknowledges the limitations and challenges of the program. It does not give a blanket recommendation to all districts to adopt a CAPS program. Every district will need to further research implementation in order to make an informed decision. Data about the link between the PCCAPS program and college and career readiness might help to justify the cost to other districts that believe the innovative program would be beneficial to its students.

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105   Of course, there are some wrinkles to researching these questions. Pursuing post-secondary education or entering a career in the same field as a student's PCCAPS program is only one way of suggesting that PCCAPS aided in college and career readiness. One benefit of PCCAPS could be that a student rules out a career field they previously believed they wanted to pursue. Such students would not be found among those who chose a career related to their PCCAPS experience, but this shouldn't suggest they did not benefit from the program. Some may have pursued that field regardless of the experience. Additionally, some students may be more successful due to professional or "soft" skills learned.

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