



BLACK PANTHER SERIES TEACHES KIDS STEM SKILLS VIA YOUTUBE

BY JACKIE SIZEMORE



INSPIRED BY WAKANDA, EDUCATOR AND MAKER NETIA MCCRAY ENGAGES THE NEXT GENERATION OF DESIGNERS WITH FREE SOFTWARE AND A DYNAMIC BLACK PANTHER SERIES.

For many young students, STEM careers might sound like a boring nine-to-five in a stale office environment. However, MIT grad [Netia McCray](#) has been working for the past eight years to motivate and connect young students with STEM and design. In early 2018 she and [Erica Nwankwo](#) launched a four-part Black Panther-inspired series on YouTube. Each episode includes tips for re-creating some of the film's exciting artifacts, such as Queen Ramonda's crown and Nakia's ring blades. Highlighting the many intersections between art and technology, the projects and interviews inspire kids to design with technology.

As the founder and executive director of Mbadika, Netia McCray uses partnerships and educational outreach to inspire young people in creative STEM fields. [Mbadika](#) is Kimbundu (a language prevalently spoken in the northern region of Angola) for "idea." Though headquartered in Boston, Massachusetts, the nonprofit organization has provided workshops and projects all over the world, including in Brazil, Chile and Mexico. McCray's hope is to inspire future engineers, innovators and entrepreneurs all over the world, from the U.S. to sub-Saharan Africa to Latin America. Through Mbadika, McCray aims to provide young people with "the knowledge, skills, and resources necessary to transform their ideas for challenges, large and small, into solutions whose implementation can not only impact their lives, but the lives of their communities and the world."

McCray's educational YouTube videos started with a love of Marvel comics, specifically the Black Panther series. Erica Nwankwo, youth engagement manager of [Autodesk](#) and community ally, had often shared with McCray her fantasy of living in the Kingdom of Wakanda and being able to use a mind-controlled suit of armor and other highly advanced weapons and artifacts. Nwankwo and McCray partnered to host several maker workshops and found inspiration through what each brought to the classroom and planning stages.

Then they saw the trailer for the *Black Panther* [movie](#).

Immediately Nwankwo and McCray knew they wanted to create a makers' workshop focused on designing items from the movie.

The two held a three-hour workshop through the Possible Project and Build Boston, two after-school programs. After showing the *Black Panther* trailer to 25 young students, McCray and Nwankwo guided them through Autodesk's 3D modeling TinkerCAD software to create a foam-core version of Queen Ramonda's crown (the one Angela Bassett wears when her character greets T'Challa). The workshop generated enthusiasm in students who otherwise hadn't been highly interested in 3D modeling or STEM fields. Many even asked to stay in contact to complete their projects.

That's when McCray and Nwankwo realized they had a much-needed project that warranted a bigger platform.



NETIA CRAY LEADS A MBADIKA PLANNING MEETING. MBADIKA VIA [TWITTER](#)

In an interview for *Crixeo*, Nwankwo explained to me that Autodesk has a longstanding relationship with educational partners, supporting them in not only creating software but crafting relevant learning content to engage students. The international software company, which is arguably best known for products like AutoCAD, Fusion 360 and Maya, focuses on the areas of design, architecture, engineering, entertainment and related fields. As part of the company's mission, Autodesk's Education Experiences connects with and sponsors initiatives that help people of all ages excel in learning through making. Plus, all students, whether K-12 or college, formal or informal, can [access free cloud-based Autodesk software](#). Nwankwo said the goal of the collaboration is "to help spark [students'] creativity, to cultivate a love for design and being successful in careers and designing the future. We're really excited about projects like this and more in the future to come."

The target age group for McCray and Nwankwo's workshops and their Black Panther series on YouTube is late elementary school to middle school — the age when many students begin to lose interest in STEM. Amid peer pressure, misinformation and limited role models and support, there are many reasons students might turn away from a STEM-focused career.

A [2018 study by Microsoft](#) found that providing teachers with "engaging and relatable STEM curriculum, such as 3D and hands-on projects," is especially helpful in keeping girls' interest. Educational initiatives like McCray and Nwankwo's Black Panther series can be crucial for teachers who may not have the time, resources or pop culture knowledge to craft a 3D-modeling school project on top of their many other duties.

While a [2018 Pew Research Center article](#) stated that the STEM workforce is 50% women, gender ratios vary greatly across specific occupations and educational levels, especially in computer jobs and engineering, where women remain underrepresented. Black and Hispanic workers are still significantly underrepresented in STEM jobs, despite increases in college attendance and degrees. As educators and nonprofits continue to tackle barriers of accessibility, interest and job placement, a need for greater diversity in STEM remains.



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McCray and Nwankwo know pop culture has a powerful potential to inspire all people, whether metaphorically or literally. They saw the potential for educators to use their Black Panther series to present STEM in a new light to students who love comic books.

For McCray, part of the joy of being a maker is being able to re-create exciting projects. Lovingly reproducing designs is a big part of many fandoms, especially in comics, science fiction and fantasy. The popularity of events like [Comic-Con International](#) and theme parks like [The Wizarding World of Harry Potter](#) demonstrate that people of all ages and backgrounds find joy in being immersed in the worlds they love.



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In the first episode, "Maintain the Crown," McCray and Nwankwo break down the different three-dimensional shapes needed to re-create Queen Ramonda's crown before they send the model to the 3D printer. The joy on McCray's face as Nwankwo places the crown on her head is sure to inspire young students learning to use new technology. Knowing the actual crown in the movie itself was also made with a 3D printer brings real-world potential to the project. Students get to follow along in more detail using the [Instructables download](#), which walks them through TinkerCAD and provides helpful tips, such as preselecting the 3D printer to ensure the project will fit the printer.

An important part of McCray's vision for the project was to introduce young people of color to diverse professional makers. "We want to make sure that kids are inspired to see that the face behind a lot of things that they like or retweet with their friends on social media is someone who looks like them." In the second episode of the Black Panther series, maker Darrell Maloney, of the [Broken Nerd YouTube channel](#), joins the team to create [Okoye's spear](#). McCray also interviews [Douriean Fletcher](#), the official jewelry designer for the *Black Panther* film. Fletcher expresses hope that the film will draw students' attention to makers of color and show them that "it is possible for them to achieve their dreams if they have a dream to do something big."

McCray shared that while talking with the designer, Fletcher admitted she'd never created armor before, and that it took several attempts to perfect the armor for the Kingdom of Wakanda's armed guard. While most students likely won't have a successful build the first time through the process, McCray wants to reassure them: "I've been using CAD software for nearly a decade at this point, and even Queen Ramonda's crown for me — I was still having issues with aligning things because I didn't dot my *Is* and cross my *Ts* in terms of all my settings." She knows it's imperative to help new makers understand these skills take practice and patience.



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Beginning with the comics, *Black Panther* has always been McCray's guilty pleasure. For her, the Kingdom of Wakanda represents "that people who look like me — whether male or female, browner, darker skin — are capable of being intelligent, of coming up with solutions for themselves, and of creating a society that can develop solutions to challenges without destroying each other." Even before attending MIT to study engineering, McCray would talk with her father about how cool it would be to create the items she saw in the comic books. Now, through her Black Panther series on YouTube as well as other initiatives, McCray is building a legacy that empowers young students to access and utilize models of thinking that may launch their careers, whether STEM-related or STEM-adjacent.

Nwankwo sees *Black Panther* as a symbol of hope and empowerment. "I think the movie really generates a lot of positivity as well as hope and creates a level of dignity in being a person of African or African-American descent." She added, "It's important that *Black Panther* is out there to really be an encouragement to the community, to create their own future, to assume leadership, to venture out into new territories, to learn new products, to learn new technologies."

Films like *Black Panther* provide inspiration, empowerment and entertainment on broad levels. They also spotlight exciting careers in design, fashion and costuming — both on-and-off-screen — inspiring generations to come. Thanks to creative educators like Netia McCray and Erica Nwankwo, students can learn skills for their future and discover new outlets for nerdy passions through the joy of creating.

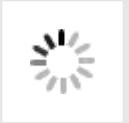
Watch the first video of their Black Panther series below!

You can follow Mbadika on social media: Facebook [@MbadikaWorld](#), Twitter [@Mbadika](#) and Instagram [@mbadika](#).



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