Well Rounded Access Program Needs Assessment

A Report on Access to STEAM and the Arts for K-12 Students in Oregon

January 2022

Executive Summary

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Executive Summary

Introduction

In 2020, Oregon received a five-year, $9.8 million grant from the U.S. Department of Education through the Expanding Access to Well-Rounded Courses Demonstration Grant program. This grant provided a unique opportunity to create an innovative program with the purpose of expanding access to well-rounded courses for Oregon's K-12 students with a focus on STEAM (science, technology, engineering, arts, and math) and arts-specific content. This particular focus recognizes the value of STEAM and arts education in bolstering student engagement and providing increased opportunities for students to develop cross-cutting skills, while also highlighting the benefits of increasing capacity for a robust arts education program across the state. In the initial grant proposal, the Oregon Department of Education (ODE) identified the goal of achieving increased access to well-rounded courses in STEAM and the arts which was accompanied by the following four primary strategies:

- ODE partnering with STEM/STEAM Hubs and higher education partners to develop STEAM-related course content and provide professional learning opportunities to educators;
- ODE hiring an Arts Education Specialist to build partnerships with the Oregon arts community, arts educators, and STEM/STEAM hubs to increase access to arts education and more fully realize STEAM education;
- ODE utilizing the Oregon Open Learning and Oregon Digital Learning programs to expand access to course content; and
- ODE engaging in a competitive procurement process to create new course content and access structures.

STEAM

An approach to teaching and learning that emphasizes the natural interconnectedness between science, technology, engineering, arts, and mathematics. Although the acronym for STEAM stands for these particular content areas, the term refers to a cross-content instructional practice that includes but is not solely specific to these named content areas. Rather, the connections are made explicit through collaboration between educators resulting in real and appropriate context built into instruction, curriculum, and assessment. The common element of problem solving is emphasized across all STEAM disciplines allowing students to discover, explore, and apply critical thinking skills as they learn.

Throughout this document, STEAM is used to refer to this approach to teaching. However, names of organizations are referred to by their titles (STEM, STEAM, or STEM/STEAM).

The Well-Rounded Access Program (WRAP) is the ODE's approach to meeting this goal and creating opportunities for increased access to well-rounded courses through funding from the U.S. Department of Education's Expanding Access to Well-Rounded Courses Demonstration Grant. This grant allowed for a yearlong planning phase, which provided time to conduct a needs assessment to include both quantitative and qualitative analysis with a focus on community input. The intention is for this needs assessment to be used to guide the development of a long-term plan for the grant funds that effectively and equitably increases access to well-rounded educational opportunities for students across the state.

Between May – November 2021 the WRAP team conducted a needs assessment to:

- Examine the current landscape of funding, programs, and existing educational opportunities in STEAM and the arts for K-12 students in Oregon;
- Analyze statewide course enrollment data in order to identify possible disparities in course availability by location and course access for K-12 students attending public schools;
- Determine the existing barriers to course availability and access that cause any identified course disparities; and
- Introduce practices, strategies, and additional recommendations for the WRAP to pursue in the implementation of the program and deployment of grant funds.

The WRAP Needs Assessment identified three key findings: 1) awareness of STEAM and arts course availability is inconsistent throughout the state; 2) there is evidence of disparities in STEAM and arts course availability for rural students in Oregon; 3) there exist disparities in access to STEAM and arts courses for historically and systemically marginalized student groups.

Moreover, barriers were identified through engagement feedback and existing research regarding the observed disparities. In terms of the availability of courses, identified barriers included cost of course materials, limited staff capacity, and limited community resources. Where courses are available, further barriers identified as causing course access disparities for students included staff bias and gatekeeping, course scheduling, cost of courses, location and time, and students feeling unsafe or unwelcome in the course.

Given the key findings and identified barriers, the recommended areas of focus for the WRAP include coordinating communication and messaging around STEAM and the arts, increasing access to high quality curriculum, expanding curriculum for elementary and middle school students, and authentically partnering with established organizations and programs.

Methods

The WRAP needs assessment included multiple methods of quantitative and qualitative analysis. Quantitative analysis data included information on statewide courses and staff, which were analyzed to identify course disparities for students in both availability and access. The gathering and analysis of qualitative data was based on the WRAP engagement plan, which aimed to reach those individuals and organizations with whom ODE had not included in past engagement efforts, based on the likelihood that

they will be most impacted by this program. These data included input from community and education partners, gathered through virtual engagement sessions which took place between July – October 2021. Further, results were analyzed from a survey disseminated in September 2021 as an additional tool to gather feedback from community partners, as well as reach additional community members. The needs assessment also includes findings from related research conducted by other researchers and organizations.

Quantitative data analysis drew on statewide datasets focused on STEAM and arts courses and the staffing of these courses with the following research questions guiding the analysis:

- Are there disparities in course access for students who are traditionally underrepresented (e.g., students identifying as female in computer science courses)?
- Are there disparities in course access for students who are historically and systemically marginalized within education (e.g., students of color, students experiencing disabilities, students who are emergent bilingual)?
- Are there disparities with regards to course access based on geographical location?

Qualitative data analysis included input and feedback gathered during the engagement sessions with community and education partners as well as survey data as represented in the WRAP Engagement Plan which aimed to reach individuals and organizations who had been unrepresented in past engagement efforts as analyzed. The following research questions guided the qualitative analysis:

- What systemic barriers to course access in STEAM courses and the arts exist within schools across Oregon?
- What opportunities exist to overcome the systemic barriers identified?

Key Findings

Through engaging in multiple methods of data analysis, the WRAP team was able to examine the landscape of existing programs and funding structures for educational opportunities in STEAM and the arts in Oregon. This analysis, which will be discussed in depth through the remainder of the WRAP Needs Assessment, identified significant systemic disparities in both course availability for students in rural communities and course access for students from historically and systemically marginalized student groups. A total of three key findings were identified which are each supported by data that were gathered and analyzed as part of the process of completing the needs assessment.

1. There are numerous sources of funding and programs that provide educational opportunities to students in STEAM and the arts both within and outside of school. However, knowledge and awareness of these opportunities may not be widespread among educators, students, or families.

- Even though sustainable funding sources exist, most school and district administrators surveyed (55%) had negative perceptions about the stability of funding for well-rounded education.
- Additional survey results (35% of survey respondents) indicated uncertainty about the existence of available educational opportunities for students outside of the regular school day.

2. Students in rural communities experience disparate opportunities to engage in STEAM and arts courses when compared to their peers in more densely populated localities.
    - Students in rural communities have significantly less access to arts courses in their public schools than other student groups, with 45% of elementary students in rural communities attending a school without a standalone course in any arts discipline compared to 26% in towns, 10% in suburbs, and 20% of elementary students in cities.
    - Students in rural communities are more likely than students in more densely populated localities to attend a high school without any STEAM related courses. 17% of high school students in rural communities attend a school without computer science courses compared to 3% of high school students in cities. 39% of high school students in rural communities attend a school without an engineering and technology course compared to 10% of high school students in cities.

3. Even when STEAM and arts courses are available at their schools, many students experience disparate access to enrollment.
    - In the arts, the following student groups are underrepresented in course enrollment: Latino/a/x students, Native American/Alaska Native students, students experiencing disabilities, Ever English language learners, and students identifying as male.
    - In STEAM, the following student groups are underrepresented in high school course enrollment: Black/African American students, Latino/a/x students, students experiencing disabilities, Ever English language learners, and students identifying as female.

Further, specific barriers were identified as associated with key findings 2 and 3, which highlight opportunities for the WRAP grant in connection with the overall goal of achieving increased access to well-rounded courses in STEAM and the arts for students across the state of Oregon.

In connection with Key Finding 2, the needs assessment identified the following as barriers that currently limit the availability of STEAM and arts educational opportunities in which students can engage.

- **Material Resources** – The cost of material resources can be particularly high for STEAM and arts courses as there are often additional material costs associated with specific supplies and classroom equipment.
- **Staff Capacity** – Hiring credentialed teachers in specialized subject areas such as STEAM and the arts can be a challenge, particularly for schools in rural communities.
- **Community Resources** – In areas where there are few, if any, organizations able to provide additional educational opportunities outside of school, this can serve as a barrier to access.

In connection with Key Finding 3, the needs assessment identified the following as barriers that currently limit students' access to STEAM and arts educational opportunities.

- **Staff Bias and Gatekeeping** – Within some schools and districts, students are required to pass perquisite courses or have teacher recommendations to enroll in STEAM and arts courses. This, along with the potential for counselors, teachers, and/or principals to discourage student enrollment can serve as a gatekeeper.
- **Course Scheduling** – Limited flexibility in course scheduling can be a hindrance for students wanting to take specific courses. This most acutely impacts students experiencing disability, students who are emergent bilingual, or students who receive support or interventions outside of the classroom and are thus excluded from taking elective courses.
- **Cost of Courses** – Specialized courses such as STEAM and arts courses often require higher costs. If students and families are required to pay for course materials, this can serve as a barrier for students navigating poverty.
- **Location and Time** – If educational opportunities are offered outside of school and/or outside of the regular school day and transportation or additional times are not offered, this has the potential to impact access for students without transportation options and students who provide childcare for siblings or have other work obligations.
- **Students Feeling Unsafe or Unwelcome in the Course** - Even if students are able to enroll in STEAM and arts courses, they may avoid doing so not for lack of interest in learning the course content, but because they do not feel safe or welcome within the learning environment.

In addition to the key findings above, the COVID-19 pandemic has impacted well-rounded educational opportunities for students. Although the specifics of this impact are not contained in this report, engagement partners did share how the pandemic has exacerbated existing barriers to equitable access as well as create conditions for new barriers, including COVID-19 safety mitigations and their impact on equipment use, physical distancing, and activities with high levels of aspiration. The implications and limitations presented for students vary widely by site and program.

Recommendations

Recommendations were developed based on research as well as community engagement feedback with a focus on ways in which to disrupt systemic barriers impacts Oregon students in equitably accessing STEAM and arts courses. Recommended areas of focus for the implementation of WRAP include:

- **Communication and Messaging** – In an effort to respond to the needs regarding expanding awareness of STEAM and arts courses and opportunities, developing communication pathways and creating consistent and responsive messaging will be an important part of the WRAP work. This involves a two-prong approach including coordinating outreach and communication between school administrators, STEM Hubs, arts and other community organizations, as well as creating messaging around unified education concepts and definitions related to STEAM and the arts.
- **The Adoption and Implementation of High-Quality Curriculum** – In order to ensure that students experience deep learning and a sense of belonging within their courses, it is important that a high-quality curriculum is implemented. For the purposes of this work, high quality curriculum includes interdisciplinary/cross-curricular content, incorporates Essential Skills, is culturally responsive, and follows the guidelines of Universal Design for Learning (UDL).
- **Expanding Foundational Curriculum for Elementary and Middle School Students** – In connection with high quality curriculum, there should exist an assurance statewide regarding increased access to STEAM and arts courses for students of all ages. This involves expanding curriculum that introduces students to foundational concepts in STEAM, the arts, and career exploration during grades K-8 to prepare students for more in-depth learning during high school.
- **Authentically Partnering with Established Organizations and Programs** – Success in expanding access to well-rounded educational opportunities already exists for established organizations and programs in some Oregon communities. To build on currently operating organizations and existing programs, WRAP should seek to work alongside those who are already engaging in this work and deeply know the local community and its needs.

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