

**The Ohio Articulation and Transfer Network (OATN)
Mathematics Subgroup 5**

WebEx Meeting

Wednesday, October 12, 2016

1:00 p.m. to 2:00 p.m.

Present: Andrew Tonge, Brad Findell, Serita McGunia, David Meel, Julia Shew, Endora Night, Jenya Soprunova, Todd Esworth, Larisa Russell, Florian Haiduc, Christina Therkelsen, Brian Roget, Deidra Davis, Paula Compton, and Jessi Spencer

I. Welcome & Introductions

Andrew Tonge, Mathematics Chair for Kent State University, welcomed everyone to the meeting.

II. Review of the Ohio Math Initiative and Reasons for Reinitiating the Mathematics Subgroup

Ohio Math Initiative

Andrew Tonge began the meeting by having attendees introduce themselves. He followed by presenting the Ohio Math Initiative, an initiative through Ohio Department of Higher Education (ODHE). He explained the Ohio Math Initiative focuses on both universities and community colleges, aiming to explore additional options within the mathematics curriculum to enable student success in their career paths and by increasing graduation rates. He further detailed how Ohio's initiative builds on the work of Complete College America, a national non-profit. One of the objectives Ohio has explored is the removal of college algebra as the default requirement for first-year math; subsequently, moving to a 3 (possibly 4) pathway system, students are directed into math courses that are more relevant to their coursework as algebra may not be beneficial to every major. Tonge explained that while an algebra/calculus pathway will remain, two additional pathways for statistics and quantitative reasoning will be included. The second objective identified was the need to deviate from lecture-based teaching methods to an active learning model; favoring the need for students to understand mathematical concepts over memorization and incorporating group work into the classroom. He further expressed that since math courses are traditionally taught through lecture-based teaching the second objective will be a difficult transition, however, this transition will benefit students.

Challenges with the Ohio Math Initiative

Tonge continued his introduction of the Ohio Math Initiative and explained how traditionally college-level has meant building upon algebra II; however, he and other attendees recognized college algebra does not clearly differentiate between algebra II. It was stated that implementing the Ohio Math Initiative requires college-level

coursework to be defined while remaining flexible and sufficiently vague for the benefit of each institution. A college level course is one to build on, broaden, deepen or extend the high school mathematical curriculum. His definition allowed for the availability of a wider variety of courses to appeal to many majors. Based on national models, in Ohio the curriculum for a quantitative reasoning course builds from middle school foundations by using real world problems to deepen student knowledge through group work and conversation. Tonge used the example of a student analyzing a realistic problem, transcribing it to a mathematical equation, and once solved, reflecting the solution to the real world and with a thorough understanding he or she has the ability to explain the reasoning effectively. Tonge promoted professional development workshops to combat the difficult transition for higher education faculty. Aimed to accommodate the lack of exposure to active learning, the workshop will focus on methods for larger classroom settings. After asking attendees to keep in mind how the three pathways align with high school curriculum, Tonge closed his introduction by reiterating the three pathways:

1. Quantitative Reasoning
2. Statistics
3. College Algebra

Question, Comment, and Concerns with the Ohio Math Initiative

Andrew Tonge asked attendees for their input or if any questions needed to be addressed. Tonge was able to establish everyone understood his review of the past year and the purpose of reinitiating the mathematics subgroup. He followed by asking for any ideas and foreseen challenges with the Ohio Math Initiative. Brad Findell identified the persistent challenge of remediation. One proposition was to provide a broad learning experience through quantitative foundations such as explanation and reasoning to create more durable students. Tonge replied referring to how the Ohio Transfer Model (OTM) focuses on course objectives to increase retention. David Meel questioned how quantitative reasoning fits into high school level math and additionally asked to make special consideration for the college credit plus faculty. Tonge assured Meel that quantitative reasoning courses are just one type of transitional course for high schools. Brad Findell informed the subgroup of Greg Foley, Mathematics Chair at Ohio University, who developed materials for high school level quantitative reasoning courses. He further shared how Foley's materials may be a resource for college-level quantitative reasoning. He emphasized Foley's thought process can be used for course development if his materials cannot.

III. **Exploration of Workshop Barriers**

Moving forward Serita McGunia, assistant professor at Cuyahoga Community College, requested the attendees choose topics for workshops, identify issues which may result, and focus on how the transition will occur for Ohio. McGunia referenced a publication produced by Community College Research Center (CCRC) detailing the transitional developmental level math courses available in Tennessee and West Virginia during the 12th grade. McGunia requested clarification on the subgroup's goals, specifically, whether student preparation is for the 3 pathways or college readiness.

Discussions on Workshop Barriers

Serita McGunia invited attendees to participate in an open discussion. Endora Kight, a faculty member at East Tech High School and Cuyahoga Community College, began her contribution by sharing how East Tech encouraged college readiness by focusing on the student tracks. The high school's system is implemented through its' two-track pathway, STEM or non-STEM. While the high school has discussed what courses students should reach by the 12th grade, the conversation was driven by factors regarding career paths, availability, and prior coursework. She stated pathway concerns about students with learning disabilities and students with undecided career paths; presenting the possibility for alternative routes. Additional concerns were presented:

1. How do districts provide students courses that are not readily available in their educational building?
2. How does a district determine the best placement for a student?

Tonge followed stating proper alignment would occur if the committee tackles these concerns appropriately. He detailed how Complete College America has explored the quantitative track with the objectives to reduce remediation and build quantitative courses without an algebra focus.

The OSU Workshop Model

Tonge introduced Brad Findel, Associate Director of Math Programs for Teachers at Ohio State University (OSU), to talk about his work and how it may be a possible model for Ohio Mathematic Initiative Workshops. Findell stated course overlap was explored last June in OSU's workshop, "What is College Mathematics." He clarified the distinction between high school curriculum and the complex, sophistication, and depth within college-level courses. Concerned about remediation, Findell expressed how without learning objectives, courses such as quantitative reasoning may lead to credit given for the sake of graduation. Findell detailed how high-quality education is driven by active learning. He added that mathematical retention can be encouraged through sophisticated reasoning using methods such as arithmetic in complex

settings and algebra within spreadsheets. He suggested promoting inclusive faculty education, sharing best practices, and determining what constitutes as instructional procedures, understanding, reasoning, and concepts. Findell spoke of his experience teaching college algebra this fall; from which, he has gained new insight on the challenges and benefits of active learning within a college classroom and now holds the belief that quantitative reasoning is best suited for workforce preparation. Endora Kight followed Findell by questioning if quantitative reasoning is enough. Tonge assured the subgroup that resources are available to make an informative decision on whether the 3 pathways are a good fit for Ohio. Lastly, Tonge concluded with the example of Kent State University who wants all students to take a calculus course; he perceived the desire unnecessary when the opportunity of 3 pathways allows development on a variety of courses benefitting all majors.

IV. Needs and Priorities for P16 Alignment

Tonge transitioned to the next topic, needs and priorities. Historically, K12 and the P16 system have not been well-aligned; opening the floor for suggestions, Tonge asked committee members to focus on the objective to improve the alignment. Kight described the depth of overlap being ingrained as far as college-level courses overlapping with grade school material. Tonge explained how courses in a series have similar names regardless of level; however, the material furthers in depth as a student travels to the more advanced courses.

Brian Roget, Associate Director for Office of Curriculum and Assessment, Ohio Department of Education (ODE), related his high school teaching experience by articulating 2 major points to the mathematics subgroup:

1. He expressed how middle-level courses are frequently added at the high school level which when combined with pre- level courses may affect the length of 4-year coursework.
2. He emphasized the additional affects proposed coursework would have on National Collegiate Athletic Association (NCAA) eligibility. Due to concerns stemming from new coursework and the possibility of ineligibility, he suggested Ohio Department of Higher Education (ODHE) ensures a proper fit and preparation for student athlete success in higher education.

Tonge stated how bridges have been discussed for STEM and non-STEM pathways, however, no decision has been made. Paula Compton, Associate Vice Chancellor for Articulation and Transfer (OATN), ODHE, echoed that some states have already built bridges and refer to the common core as one solution.

V. Identifying Regional Workshop Locations

Andrew Tonge prioritized the need to organize regional workshops and questioned their dynamics:

1. How many workshops should be organized?
2. In what format should the workshop be presented?
3. In what locations should the workshops take place?

Tonge asked participants to define regions and choose appropriate location for each meeting. Compton informed attendees about educational service centers and universities that may have no-cost facility availability. Roget informed attendees how Ohio is divided into 16 regions by ODE and how 5 regions may benefit the Ohio Math Initiative workshops. Roget suggested that larger regions be additionally split to draw faculty from the outer boundaries. Conversely, an option presented focuses on the 3 big cities: Cleveland, Columbus, and Cincinnati. Roget proposed additional workshops be added in areas where there is a lack of access to the big cities therefore, creating 8 locations rather than just 5. He recognized how selecting 16 regions would be costly and selecting 5 regions would not provide full state coverage.

VI. Announcing the Upcoming Meeting: November 5th, 2016

Paula Compton informed the mathematics subgroup 5 members of the upcoming planning meeting to be held at the Columbus Main Library. This planning meeting will focus on upcoming workshops such as establishing regions and workshop format: where and when to host. She encouraged attendees to extend invitations to secondary faculty. Compton suggested the subgroup hold 2 – 3 meetings in the spring, reserving the rest for autumn. She stated 6 – 8 regions may be too much work and 2 -3 workshops can provide feedback to improve the fall sessions.

VII. Consensus & Next Steps

Tonge called for any ideas to be emailed to Paula Compton and emphasized how the November 5th meeting will be discussion-based. Brad Findell also stated the agenda should focus on Ohio faculty and their work together through learning and engagement.

VIII. For the Good of the Order

There being no further business for discussion, Mathematics Chair Tonge adjourned the meeting.