JOHN Tyler COMMUNITY COLLEGE

Institutional Plan to Assess Learning and Quality in Undergraduate Education

Spring 2020

Submitted:

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Executive Summary

John Tyler Community College (Tyler)'s vision is a "success story for every student." To realize our vision, Tyler strives to provide "quality educational opportunities that inspire student success and community vitality." We plan to assess the educational opportunities we provide our students by measuring student learning through a combination of class-based (or direct) assessments, graduate testing, and student surveys (indirect assessments), in keeping with State Council of Higher Education for Virginia (SCHEV) policy and Virginia Community College System (VCCS) policy. These policies direct us to measure student learning and report findings for six general education outcomes: Civic Engagement, Critical Thinking, Professional Readiness, Quantitative Literacy, Scientific Literacy, and Written Communication.

According to VCCS Policy 5.0.2.0, general education competencies "distinguish graduates of Virginia's Community Colleges as individuals with a breadth of knowledge, skills, and abilities needed to pursue further education and their careers, continue to develop as learners, and contribute to the well-being of their communities." Further, VCCS expects that at the completion of a two-year associate-level degree, our graduates will demonstrate competency in these six areas.

VCCS Policy 5.0.2.1 defines the six competencies and expectations as follows:

> **Civic Engagement** is the ability to contribute to the civic life and well-being of local, national, and global communities as both as social responsibility and a life-long learning process. Degree graduates will demonstrate the knowledge and civic values necessary to become informed and contributing participants in a democratic society.
>
> **Critical Thinking** is the ability to use information, ideas and arguments from relevant perspectives to make sense of complex issues and solve problems. Degree graduates will locate, evaluate, interpret, and combine information to reach well-reasoned conclusions or solutions.
>
> **Professional Readiness** is the ability to work well with others and display situationally and culturally appropriate demeanor and behavior. Degree graduates will demonstrate skills important for successful transition into the workplace and pursuit of further education.
>
> **Quantitative Literacy** is the ability to perform accurate calculations, interpret quantitative information, apply and analyze relevant numerical data, and use results to support conclusions. Degree graduates will

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calculate, interpret, and use numerical and quantitative information in a variety of settings.

Scientific Literacy is the ability to apply the scientific method and related concepts and principles to make informed decisions and engage with issues related to the natural, physical, and social world. Degree graduates will recognize and know how to us the scientific method, and to evaluate empirical information.

Written Communication is the ability to develop, convey, and exchange ideas in writing, as appropriate to a given context and audience. Degree graduates will express themselves effectively in a variety of written forms.

To develop a college-wide process to measure student learning, we formed the General Education Committee. For the pilot year, the committee identified twelve (12) courses that met general education outcomes across several Associate degree programs. Two courses were identified for each outcome in the pilot year (2018-2019), with the intent to roll-out additional in-course assessments in subsequent years.

Within the General Education Committee, we formed subcommittees to represent each of the six outcomes. The subcommittees worked with faculty to develop class-based assessments to ensure they captured student learning, and reported their findings to the entire committee. Working within subcommittees and with the Office of Institutional Effectiveness, our faculty aligned our course-embedded assessments to learning outcome maps, and our syllabi course-level learning outcomes to the competencies, to demonstrate what outcomes were captured in courses. Through a college-wide survey deployed during Fall 2018, faculty provided feedback to support competency to outcome alignments.

We intend to report our analysis of direct in-class assessments, disaggregated by student populations, as appropriate and available. Every year, on a six-year cycle, we plan to measure and report results for graduate testing and indirect assessment for one of the six outcomes. Where available and appropriate, we will provide additional information that shows our educational opportunities related to the six general education outcomes. Following this executive summary are the assessment plans for each of the six general education outcomes we developed through a shared governance process.

Reporting Schedule

The College plans to publicly report its direct assessment findings for all six outcomes annually, by the 2020-2021 academic year. Findings for graduate testing and indirect assessments will be administered and reported according to the schedule below:

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General Education Competency	Direct In-class Assessment and Reporting	Graduate Testing	Indirect Assessment	Reporting Year for Graduate Testing and Indirect Assessment
Civic Engagement	Annually	2017-2018	2017-2018	2020-2021
Critical Thinking	Annually	2018-2019	2018-2019	2020-2021
Quantitative Literacy	Annually	2019-2020	2019-2020	2021-2022
Scientific Literacy	Annually	2020-2021	2020-2021	2022-2023
Written Communication	Annually	2021-2022	2021-2022	2023-2024
Professional Readiness	Annually	2022-2023	2022-2023	2024-2025

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Assessment Plan: Civic Engagement

Definition

Civic Engagement is the ability to contribute to the civic life and well-being of local, national, and global communities as both a social responsibility and a life-long learning process.

Explanation of the Overarching Student Learning Outcome (SLO) and Application

Overarching SLO: Demonstrate the knowledge and civic values necessary to become informed and contributing participants in a democratic society (Civic Engagement).

Civic Engagement, at the course-level, is measured across seven domains: civic knowledge, civic identity, civic discourse, diversity in civic life, ethical reasoning, civic responsibility, and social justice. Civic knowledge is defined as the ability to interact with and understand governmental structures and processes. Civic identity is defined as the skills related to "active citizenship…[including] dialogue, interpersonal perspective taking, and critical systematic thought" (Hatcher, 2011, p. 84). Civic identity is the ability of individuals to see themselves as "active participants in society with a strong commitment to work with others toward the public good" (p. 85). Civic discourse is presented by Leske (2013) and defined by Brosseau (2011) as a "robust, honest, frank and constructive dialogue and deliberation that seeks to advance the public interest." Diversity in civic life is defined as the skills to accept, include, and promote equity. Ethical reasoning is defined as the examination of the ethical implications of community and civic actions and decisions. Civic Responsibility is defined as demonstrating consideration for and responding to civic, social, environmental, or economic challenges at local, national, or global levels. Social Justice is defined as identifying personal and collective actions that could be taken to address injustices in society.

Therefore, the sub-outcomes for the overarching SLO for Civic Engagement, has been aligned to seven domains as –

- Civic Knowledge: Summarize fundamental principles and debates about democracy and citizenship, both within the United States and in other countries.
- Civic Identity: Reflect on personal social/civic identity and how that identity differs from others in their communities.
- Civic Discourse: Deliberate on issues and problems to advance or achieve a civic aim.

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- Diversity in Civic Life: Recognize the value of diverse feelings, perspectives, and life experiences, and the strength that such diversity brings to civic life.
- Ethical Reasoning: Examine the ethical implications of community and civic actions and decisions.
- Civic Responsibility: Consider and respond to civic, social, environmental, or economic challenges at local, national, or global levels.
- Social Justice: Identify personal and collective actions that could be taken to address injustices in society.

Within the syllabi of courses participating in college-wide outcomes assessment, the course-level Student Learning Outcomes (SLOs) are aligned to at least three overarching general education outcomes. The overarching general education SLO is divided into course-related SLOs to show the connection between the two. The in-class assessments are aligned to a learning outcome map using the domains above, to show where and how the direct course-embedded assessment captures the sub-outcomes above.

Goals

Student Learning Outcomes goals for civic engagement are dependent on the type of test, assignment, or survey administered. Overall, direct in-class assessments have a target measure of 75% of students scoring the equivalent of a 70% or higher on the assignment; this target measure also meets a recommended target measure in annual program-level direct academic assessment, per Tyler's Academic Assessment Committee. Proficiency level by domain targets have yet to be determined; it is anticipated that the pilot will help establish the baseline for goal-setting.

Goals for graduate testing will be determined upon analysis of the first administration of the test, to establish a baseline and to set goals for continuous improvement. The Civic Competency & Engagement HEIghten test (ETS, 2019) will provide a Civic Competency mean or average score, capturing the Civic Knowledge and Civic Skills domains or subcategories; a Civic Attitudes mean score; a percentage of test takers at each Civic Competency and Civic Attitudes Level Descriptions; and a summary and item-level analysis to Civic Participation survey questions (ETS, 2019).

Methods

Direct Assessment

Initially, the Tyler General Education Committee identified two courses for the first cohort of direct assessment:

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HIS 121, United States History to 1877; and
SOC 200, Principles of Sociology.

In addition to being part of the core of the General Studies AS degree, HIS 121 is captured in 20 two-year degree programs; SOC 200 is captured in 25 two-year degree programs. Therefore, the results of these direct course-level assessments intend to capture outcomes assessment across a broad range of programs at the College.

Lead faculty for both courses met with supporting faculty in Fall 2018 to develop multiple-choice quantitative assessments. With faculty involvement, course syllabi were revised to demonstrate course alignment to at least three of the six overarching student learning outcomes for general education. Selection of overarching SLOs, divided by area or discipline, were based on results collected from a faculty survey provided at the conclusion of a college-wide assessment training.

HIS 121, United States History to 1877, is one of the courses selected to participate in the pilot (and Cohort 1) of college-wide outcomes assessment. On its aligned syllabus under the first overarching SLO for Civic Engagement, the course-level SLOs are –

- Demonstrate a basic knowledge of the major historical events, concepts, issues, and personalities that dominate American history from the European exploration to the Americas through the Civil War and Reconstruction.
- Analyze the political and ethical values embodied in documents such as the Declaration of Independence, the United States Constitution, the Bill of Rights, and the decisions of the Supreme Court, such as freedom, liberty, democracy, equality, and justice.
- Identify the impetus for the Constitutional Convention and analyze the compromises and basic tenets of the Constitution which emerged from that Convention.

For SOC 200, Principles of Sociology, the second course participating in the Civic Engagement pilot (and Cohort 1), the course-related SLOs are –

- Describe the organization of social life, including basic sociological concepts of society, culture, norms, socialization, social structure, groups, and institutions.
- Specify the impacts of groups and organizations on behavior.

Over the long-term, Tyler intends to identify and develop assessments for additional courses within the general education *core*, as part of its commitment to continuous improvement in learning. The general education *core* comprises the courses within the General Studies AS degree program. These courses are also contained, at least in

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part, within all two-year degrees offered at Tyler. As such, general education outcomes assessment captures student learning across all programs at Tyler, not only the General Studies AS degree program.

During the 2019-2020 academic year, one additional course has been identified for direct in-class assessments as Cohort 2, REL 230, Religions of the World. REL 230 plans to offer an indirect survey, tied to the final course project.

For HIS 121 and SOC 200, pilot in-class assessments were administered in Spring 2019. During the pilot phase (P0), approximately 25% of course sections were assessed. At the completion of the pilot phase, the results were collected and analyzed, with the expectation that the data from P0 and P1 will be available on a public-facing webpage and in a report to SCHEV in Fall 2020. REL 230 will follow a similar assessment roll-out schedule, albeit one year later.

At the conclusion of P2, three additional years of data will be collected (P3, P4, and P5). After the third year of collection, a trending analyses of P2 through P5 will be performed. Future direct in-course assessments will follow the cycle above; however, the academic year of each phase will be adjusted based on the year and cohort of course selection. Whenever possible and appropriate, student demographics will be disaggregated to identify proficiency by population.

Graduate Testing and Indirect Assessment

In addition to direct in-course assessment of civic engagement, John Tyler Community College (Tyler) administered graduate testing in the Testing Center. Tyler used the HEIghten Civic Competency & Engagement Test by ETS to capture student learning at the conclusion of a student's two-year degree program (ETS, 2019). The VCCS expects that colleges will demonstrate outcomes assessment for two-year degree graduates, so on-campus graduate testing is included in the overall assessment process, in addition to direct in-class assessment, to capture only students completing a two-year degree program.

An indirect assessment or survey was administered during the graduate testing period. Tyler administered a modified Indiana University-Purdue University Indianapolis (IUPUI) Civic-Minded Graduate Scale in Spring 2018, to pilot indirect assessment of civic engagement and the potential for online administration at on-campus and off-site locations (IUPUI, 2019).

Overall, the modified Civic-Minded Graduate Scale was administered online, to capture those students who are unable to travel to campus to complete graduate testing, students at different levels of credential completion (i.e., beginning, middle, end), and

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dual enrollment students. There is an expectation that the results of indirect assessment will help guide student learning and continuous improvement. Results are shared in Tyler21, a cross-college committee; the General Education Committee, a committee whose focus is general education outcomes assessment; and the Academic Assessment Committee, whose focus is annual academic assessment of two-year programs and short-term credentials (i.e., career studies certificates, and certificates).

In addition to graduate testing and indirect online assessment, John Tyler Community College plans to collect and report ancillary data related to civic engagement. This data may include aggregate data of student clinical experiences in health science-related programs and/or service learning projects. These will not be scored, but instead presented as additional examples of civic engagement by Tyler students.

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Assessment Plan: Critical Thinking

Definition

Critical Thinking is the ability to use information, ideas and arguments from relevant perspectives to make sense of complex issues and solve problems.

Explanation of the Overarching Student Learning Outcome (SLO) and Application

Overarching SLO: Locate, evaluate, interpret, and combine information, to reach well-reasoned conclusions or solutions (Critical Thinking).

Critical Thinking, at the course-level, is measured across two domains: analytic skills and synthetic skills (Liu et al., 2016). Analytic skills encompass the ability to evaluate evidence or arguments, by itself and within a broader context; demonstrating an understanding of the language of argumentation and identifying linguistic cues; and differentiating between valid and invalid arguments. Synthetic skills encompass demonstrating an understanding of implications and consequences, and developing arguments that are valid and sound.

The sub-outcomes for the overarching SLO for Critical Thinking are –

- Analytic Skills:
  - Evaluate evidence, arguments, and its use;
  - Demonstrate an understanding of the language of argumentation and recognize linguistic cues; and
  - Distinguish between valid and invalid arguments.

- Synthetic Skills:
  - Demonstrate an understanding of implications and consequences, and
  - Develop arguments that are valid and sound.

Within the syllabi of courses participating in college-wide assessment, the course-level Student Learning Outcomes (SLOs) are aligned to at least three overarching general education outcomes. The overarching general education outcome is divided into course-related SLOs to show the relationship between the two. The college-wide assessment, itself, is also aligned to a learning outcome map, to show where and how the assessment captures the sub-outcomes.

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Goals

Student Learning Outcome goals for critical thinking are dependent on the type of test, assignment, or survey administered. Overall, direct in-class assessments have a target measure that 75% of students will score the equivalent of 70% or higher proficiency on the assignment; this target measure also meets a recommended target measure in annual program-level direct academic assessment, per Tyler's Academic Assessment Committee. Proficiency levels by domain targets have yet to be determined; it is anticipated the pilot will help establish the baseline for goal-setting.

Goals for graduate testing will be determined upon analysis of the first administration of the test, to establish a baseline and to set goals for continuous improvement. The Critical Thinking HEIghten test will provide a Critical Thinking mean or average score, mean subscores for the Analytic and Synthetic domains or subcategories, and the percentage of test takers at each proficiency level (i.e., advanced, proficient, and developing) (ETS, 2019).

Methods

Direct Assessment

Initially, the Tyler General Education Committee identified two courses for the first cohort of direct assessment:

PHI 101, Introduction to Philosophy; and
CST 100, Principles of Public Speaking.

In addition to being part of the core of the General Studies AS degree, PHI 101 is captured in 12 additional two-year degree programs; CST 100 is captured in 23 additional two-year degree programs. Therefore, the results of these direct course-level assessments intend to capture outcomes assessment across a broad range of programs at the College.

Lead faculty for both courses met with supporting faculty in Fall 2018 to develop direct in-class assessments. Faculty in PHI 101 administered a short-answer deductive logic assignment. Faculty in CST 100 administered a persuasive speech using a faculty-developed rubric. The assessment for CST 100 tracks a student's ability to incorporate critical thinking and professional speaking skills to effectively deliver an organized persuasive speech.

Course syllabi have been revised to demonstrate course alignment to at least three of the six overarching student learning outcomes for general education. Selection of

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overarching SLOs, divided by area or discipline, were based on results collected from a faculty survey provided at the conclusion of a college-wide assessment training.

PHI 101, Introduction to Philosophy, was a course selected to participate in the pilot (and Cohort 1) of this assessment plan. On its aligned syllabus, under the first overarching SLO for Critical Thinking, the course-level SLOs are –

- Describe and apply logical standards and standards of rational discussion.
- Construct and defend arguments in support of philosophical claims; construct and defend arguments against standard philosophical positions and common objections.
- Identify and critically evaluate the positions taken by great philosophers on standard philosophical questions in the history of Western philosophy.
- Identify, categorize, and systematically evaluate basic assumptions and knowledge claims.

For CST 100, Principles of Public Speaking, the second course participating in the Critical Thinking pilot (and Cohort 1), the course-related SLOs under the overarching general education outcome are –

- Assimilate, organize, develop, and present an idea formally and informally.
- Exhibit appropriate verbal and non-verbal responses in interpersonal communication, group discussions, and speech presentations.

Over the long-term, Tyler intends to identify and develop assessments for additional courses within the general education *core*, as part of its commitment to continuous improvement in learning. The general education *core* comprises the courses within the General Studies AS degree program. These courses are also contained, at least in part, within all two-year degrees offered at Tyler. As such, general education outcomes assessment captures student learning across all programs at Tyler, not only the General Studies AS degree program.

During the 2019-2020 academic year, one additional course has been identified for direct in-class assessments as Cohort 2, PSY 200, General Psychology, was selected to pilot an assessment in Spring 2020. The assessment they selected was a critical analysis of a news article.

For Cohort 1 courses, pilot in-class assessments were administered in Spring 2019. During the pilot phase (P0), approximately 25% of course sections were assessed. At the completion of the pilot phase, the results were collected and analyzed, with the expectation that the data from P0 and P1 will be available on a public-facing webpage

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and in a report to SCHEV in Fall 2020. PSY 200 will follow a similar assessment roll-out schedule, albeit one year later.

At the conclusion of P2, three additional years of data will be collected (P3, P4, and P5). After the third year of collection, a trending analyses of P2 through P5 will be performed. Future direct in-course assessments will follow the cycle above; however, the academic year of each phase will be adjusted based on the year and cohort of course selection. Whenever possible and appropriate, student demographics will be disaggregated to identify proficiency by population.

Graduate Testing and Indirect Assessment

In addition to direct in-course assessment of critical thinking, John Tyler Community College (Tyler) administered graduate testing in the Testing Center. Tyler used the HEIghten Critical Thinking Test by ETS to capture student learning at the conclusion of a student's two-year degree program (ETS, 2019). The VCCS expects that colleges will demonstrate outcomes assessment for two-year degree graduates, so on-campus graduate testing is included in the outcome assessment process, in addition to direct in-class assessment, to capture only students completing a two-year degree program.

An indirect assessment was administered during the graduate testing period. In Spring 2019, Tyler administered a faculty-developed survey using questions from San Diego City College's Survey on Institutional Student Learning Outcomes to pilot indirect assessment of critical thinking at on-campus and off-site locations. The results of graduate testing and indirect assessment will be provided in the outcomes assessment report to SCHEV.

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Assessment Plan: Quantitative Literacy

Definition

Quantitative Literacy is the ability to perform accurate calculations, interpret quantitative information, apply and analyze relevant numerical data, and use results to support conclusions.

Explanation of the Overarching Student Learning Outcome (SLO) and Application

Overarching SLO: Calculate, interpret, and/or use numerical and quantitative information in a variety of settings (Quantitative Literacy).

Quantitative Literacy, at the course-level, is measured across five domains, gleaned from multiple sources: interpretation, representation, modeling, communication, and calculation (Roohr, 2014). Interpretation is defined as identifying and/or explaining mathematical information, data, graphs; this may include drawing conclusions and/or recognizing sources of error. Representation is defined as demonstrating the skills to convert information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words). Modeling is defined as demonstrating the ability to describe assumptions or recognize relationships in the environment or in mathematical forms, or express model(s) in one or more mathematical representations. Communication is defined as presenting symbolic and/or numerical concepts and ideas (e.g., mathematical arguments and models). Calculation is defined as providing accurate solutions to problems, using symbolic and/or numerical information.

The sub-outcomes for the overarching SLO for Quantitative Literacy are -

- Interpretation: Identify and/or explain mathematical information, data, graphs; this may include drawing conclusions and/or recognizing sources of error.
- Representation: Convert information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words).
- Modeling: Describe assumptions or recognize relationships in the environment or in mathematical forms, or express model(s) in one or more mathematical representations.
- Communication: Present symbolic and/or numerical concepts and ideas (e.g., mathematical arguments or models).
- Calculation: Provide accurate solutions to problems, using symbolic and/or numerical information.

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Within the syllabi of courses participating in college-wide assessment, the Student Learning Outcomes (SLOs) are aligned to at least three overarching general education outcomes. The overarching outcome is then divided into course-related SLOs to show the relationship of the course-related SLOs to the overarching general education outcome. The college-wide assessment, itself, is aligned to a learning outcome map, divided into domains to show where and how the assessment captures the sub-outcomes.

Goals

Student learning outcomes goals for quantitative literacy are dependent on the type of test, assignment, or survey administered. Overall, direct in-class assessments have a target measure that 70% of students will score the equivalent of 70% or higher proficiency on the assignment. This target measure is below the recommended target measure in annual program-level direct academic assessment, per Tyler's Academic Assessment Committee; however, math faculty believe it to be a more appropriate target for quantitative literacy.

Goals for graduate testing will be determined upon analysis of the first administration of the test, to establish a baseline and to set goals for continuous improvement. The Quantitative Literacy HEIghten test will assess competency in four content areas: numbers and operations, algebra, geometry and measurement, and probability and statistics (ETS, 2019).

Methods

<u>Direct Assessment</u>

Initially, the Tyler General Education Committee identified two courses for the first cohort of direct assessment:

MTH 154, Quantitative Reasoning; and
MTH 161, Precalculus I.

Lead faculty for both courses met with supporting faculty in Fall 2018 to develop quantitative assessments. The pilot assessments measure quantitative literacy among students who seek non-STEM (Science, Technology, Engineering, and Mathematics) degrees (MTH 154) and those students who seek degrees related to STEM tracks (MTH 161).

Course syllabi have been revised to demonstrate course alignment to at least three of the six overarching student learning outcomes for general education. Selection of

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overarching SLOs, divided by area or discipline, were based on results collected from a faculty survey provided at the conclusion of a college-wide assessment training.

MTH 154, Quantitative Reasoning, was one of two courses selected to participate in the Quantitative Literacy outcome pilot (and Cohort 1) of this assessment plan. On its aligned syllabus, under the first overarching SLO for Quantitative Literacy, the course-level SLOs are –

- Apply concepts in financial literacy to problem-solving, including interest, time value of money, annuities, investing and borrowing.
- Solve problems involving proportional reasoning, including representation of proportions, dimensional analysis, scaling, and scientific notation.
- Identify, categorize, and systematically evaluate basic assumptions and knowledge claims.

For MTH 161, Precalculus I, the second course in the Quantitative Literacy pilot (and Cohort 1), the course-related SLOs are –

- Perform operations on functions including evaluation, addition, subtraction, multiplication, division, composition, inverse, transformation of a graph, and partial fraction decomposition.
- Use factoring, the quadratic formula, and completing the square to convert a quadratic equation to vertex form, identify key features including intercepts, axis of symmetry and vertex, and graph a parabola.

Over the long-term, Tyler intends to identify and develop assessments for additional courses within the general education *core*, as part of its commitment to continuous improvement in learning. The general education *core* comprises the courses within the General Studies AS degree program. These courses are also contained, at least in part, within all two-year degrees offered at Tyler. As such, general education outcomes assessment captures student learning across all programs at Tyler, not only the General Studies AS degree program.

During the 2019-2020 academic year, one additional course has been identified for direct in-class assessments as Cohort 2, MTH 245, Statistics I, was selected to pilot an assessment in Spring 2020. The assessment they selected were embedded common assessment questions within the final course exam.

For Cohort 1 courses, pilot in-class assessments were administered in Spring 2019. During the pilot phase (P0), approximately 25% of course sections were assessed. At the completion of the pilot phase, the results were collected and analyzed, with the

expectation that the data from P0 and P1 will be available on a public-facing webpage and in a report to SCHEV in Fall 2020. MTH 245 will follow a similar assessment roll-out schedule, albeit one year later.

At the conclusion of P2, three additional years of data will be collected (P3, P4, and P5). After the third year of collection, a trending analyses of P2 through P5 will be performed. Future direct in-course assessments will follow the cycle above; however, the academic year of each phase will be adjusted based on the year and cohort of course selection. Whenever possible and appropriate, student demographics will be disaggregated to identify proficiency by population.

Graduate Testing and Indirect Assessment

In addition to direct in-course assessment of quantitative literacy, John Tyler Community College (Tyler) will administer graduate testing in the Testing Center. Tyler will use the HEIghten Quantitative Literacy test to capture student learning at the conclusion of a student's two-year degree program (ETS, 2019). The VCCS expects that colleges will demonstrate outcomes assessment for two-year degree graduates, so on-campus graduate testing is included in the overall outcome assessment process, in addition to direct in-class assessment, to capture only students completing a two-year degree program.

An indirect assessment will also be administered during graduate testing, to be developed. Tyler plans to pilot a faculty-developed indirect assessment for online administration at on-campus and off-site locations. The results of the graduate testing and indirect assessment will be provided in a future outcomes assessment report to SCHEV.

By administering the indirect assessment to complement graduate testing, Tyler hopes to capture those students who are unable to travel to campus to complete graduate testing, students at different levels of credential completion (i.e., beginning, middle, end), and dual enrollment students. There is an expectation that the results of indirect assessment will help guide student learning and continuous improvement. Results will be shared in Tyler21, a cross-college committee; the General Education Committee, a committee whose focus is general education outcomes assessment; and the Academic Assessment Committee, whose focus is annual academic assessment of two-year programs and short-term credentials (i.e., career studies certificates, and certificates).

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Assessment Plan: Scientific Literacy

Definition

Scientific Literacy is the ability to apply the scientific method and related concepts and principles to make informed decisions and engage with issues related to the natural, physical, and social world.

Explanation of the Overarching Student Learning Outcome (SLO) and Application

Recognize and know how to use the scientific method, and to evaluate empirical information (Scientific Literacy).

Scientific Literacy, at the course-level, is measured across five domains, gleaned from multiple sources: Method of Inquiry, Empirical Evidence, Societal Influences, Ethical Implications, and Scientific Argument (Bybee et al., 2009; Holbrook and Rannikmae, 2009; Tang and Williams, 2018). Method of Inquiry is defined as recognizing the steps of the scientific method of inquiry leading to evidence-based knowledge. Empirical Evidence is defined as using theories, reasoning, and/or models as unifying principles of natural phenomena and/or to draw evidence-based conclusions. Societal Influences is defined as recognizing the interdependence of applied research, theoretical research, and technology, and how they impact society. Ethical Implications is defined as demonstrating an understanding of the interdependence between developments in science or technology, and ethical issues. Scientific Argument is defined as distinguishing a scientific argument from a non-scientific argument.

The sub-outcomes for the overarching SLO for Scientific Literacy are –

- Method of Inquiry: Recognize the steps of the scientific method of inquiry leading to evidence-based knowledge.
- Empirical Evidence: Use theories, reasoning, and/or models as unifying principles of natural phenomena and/or to draw evidence-based conclusions.
- Societal Influences: Recognize the interdependence of applied research, theoretical research, and technology, and how they impact society.
- Ethical Implications: Demonstrate an understanding of the interdependence between developments in science or technology, and ethical issues.
- Scientific Argument: Distinguish a scientific argument from a non-scientific argument.

Within the syllabi of courses participating in college-wide assessment, the Student Learning Outcomes (SLOs) are aligned to at least three overarching general education

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outcomes. The overarching outcome is then divided into course-related SLOs to show the relationship of the course-related SLOs to the overarching general education outcome. The college-wide assessment, itself, is aligned to a learning outcome map, divided into the domains to show where and how the assessment captures the sub-outcomes.

Goals

Student learning outcomes goals for scientific literacy are dependent on the type of test, assignment, or survey administered. Overall, direct in-class assessments have a target measure that 75% of students will score the equivalent of 70% or higher proficiency on the assignment; this target measure also meets a recommended target measure in annual program-level direct academic assessment, per Tyler's Academic Assessment Committee.

Goals for graduate testing will be determined upon analysis of the first administration of the test, to establish a baseline and to set goals for continuous improvement. John Tyler Community College plans to administer the Scientific Reasoning (SR) test by Madison Assessment.

Methods

Direct Assessment

Initially, the Tyler General Education Committee identified two courses for the first cohort of direct assessment:

BIO 101, General Biology I; and
ENV 121, General Environmental Science I.

Lead faculty for both courses met with supporting faculty to develop and/or implement in-class assessments. BIO 101 piloted a modified Test of Scientific Literacy Skills (TOSLS) in course sections through its BlackBoard Learning Management System (LMS) in Fall 2018. ENV 121 piloted a lab activity with post-lab assignment to assess knowledge of the scientific process in Spring 2019.

Course syllabi have been revised to demonstrate course alignment to at least three of the six overarching student learning outcomes for general education. Selection of overarching SLOs, divided by area or discipline, were based on results collected from a faculty survey provided at the conclusion of a college-wide assessment training.

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BIO 101, General Biology I, was a course selected to participate in the pilot (and Cohort 1) of this assessment plan. On its aligned syllabus, under the first overarching SLO for Scientific Literacy, the course-level SLOs are –

- Apply the process of science to the investigation of elementary biological problems.
- Demonstrate the ability to collect, analyze, interpret, and report scientific data using graphs and tables.

For ENV 121, General Environmental Science I, the second course in the Scientific Literacy pilot (and Cohort 1), the course-related SLO is –

- Apply the scientific method to make informed decisions and engage with issues related to environmental science.

Over the long-term, Tyler intends to identify and develop assessments for additional courses within the general education *core*, as part of its commitment to continuous improvement in learning. The general education *core* comprises the courses within the General Studies AS degree program. These courses are also contained, at least in part, within all two-year degrees offered at Tyler. As such, general education outcomes assessment captures student learning across all programs at Tyler, not only the General Studies AS degree program.

During the 2019-2020 academic year, one additional course has been identified for direct in-class assessments as Cohort 2, PHY 101, Introduction to Physics I, was selected to pilot an assessment in Spring 2020.

For Cohort 1 courses, pilot in-class assessments were administered in Spring 2019. During the pilot phase (P0), approximately 25% of course sections were assessed. At the completion of the pilot phase, the results were collected and analyzed, with the expectation that the data from P0 and P1 will be available on a public-facing webpage and in a report to SCHEV in Fall 2020. PHY 101 will follow a similar assessment roll-out schedule, albeit one year later.

At the conclusion of P2, three additional years of data will be collected (P3, P4, and P5). After the third year of collection, a trending analyses of P2 through P5 will be performed. Future direct in-course assessments will follow the cycle above; however, the academic year of each phase will be adjusted based on the year and cohort of course selection. Whenever possible and appropriate, student demographics will be disaggregated to identify proficiency by population.

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Graduate Testing and Indirect Assessment

In addition to direct in-course assessment of scientific literacy, John Tyler Community College (Tyler) will administer graduate testing in the Testing Center. Tyler will administer the Scientific Reasoning (SR) test by Madison Assessment for its graduate testing of the scientific literacy outcome. According to the Madison Assessment webpage, the Scientific Reasoning (SR) test will assess a student's ability to –

1. Describe the methods of inquiry that lead to mathematical truth and scientific knowledge and be able to distinguish science from pseudoscience.
2. Use theories and models as unifying principles that help us understand natural phenomena and make predictions.
3. Recognize the interdependence of applied research, basic research, and technology, and how they affect society.
4. Illustrate the interdependence between developments in science and social and ethical issues.
5. Formulate hypotheses, identify relevant variables, and design experiments to test hypotheses.
6. Evaluate the credibility, use, and misuse of scientific and mathematical information in scientific developments and public policy issues.

The intent of graduate testing is to capture student learning at the conclusion of a student's two-year degree program. The VCCS expects that colleges will demonstrate outcomes assessment for two-year degree graduates, so on-campus graduate testing is included in the overall outcome assessment process, in addition to direct in-class assessment, to capture only students completing a two-year degree program.

An indirect assessment will also be administered during graduate testing. Tyler plans to pilot a faculty-developed indirect assessment for online administration at on-campus and off-site locations. The results of the graduate testing and indirect assessment will be provided in a future assessment report to the State Council of Higher Education for Virginia (SCHEV).

By administering an indirect assessment to complement graduate testing, Tyler hopes to capture those students who are unable to travel to campus to complete graduate testing, students at different levels of credential completion (i.e., beginning, middle, end), and dual enrollment students. There is an expectation that the results of indirect assessment will help guide student learning and continuous improvement. Results will be shared in Tyler21, a cross-college committee; the General Education Committee, a committee whose focus is general education outcomes assessment; and the Academic Assessment Committee, whose focus is annual academic assessment of two-year programs and short-term credentials (i.e., career studies certificates, and certificates).

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Assessment Plan: Written Communication

Definition

Written Communication is the ability to develop, convey, and exchange ideas in writing, as appropriate to a given context and audience.

Explanation of the Overarching Student Learning Outcome (SLO) and Application

Express oneself effectively by developing, conveying, and/or exchanging ideas in writing, as appropriate to a given context and audience (Written Communication).

Written Communication, at the course-level, is measured across five domains, gleaned from multiple sources: context and purpose, content development, genre and disciplinary conventions, sources and evidence, and syntax and mechanics (AAC&U, n.d.; Rios et al., 2017). Context and purpose is defined as presenting the topic with respect to the intended audience, setting, and objective. Content development is defined as showing an understanding of the subject matter through use of appropriate, relevant, and compelling writing. Genre and disciplinary conventions are defined as demonstrating appropriate use of organization, content, presentation, formatting, and stylistic choices. Sources and evidence is defined as applying high-quality, credible, and relevant sources to develop and communicate ideas appropriate to the goal and genre. Syntax and mechanics are defined as using language that communicates meaning to readers with clarity and fluency, with few or no errors.

The sub-outcomes for the overarching SLO for Scientific Literacy, has been aligned to five domains as –

- Context and Purpose: Present the topic with respect to the intended audience, setting, and objective.
- Content Development: Show an understanding of the subject matter through use of appropriate, relevant, and compelling writing.
- Genre and Disciplinary Conventions: Demonstrate appropriate use of organization, content, presentation, formatting, and stylistic choices.
- Sources and Evidence: Apply high-quality, credible, and relevant sources to develop and communicate ideas appropriate to the goal and genre.
- Syntax and Mechanics: Use language that communicates meaning to readers with clarity and fluency, with few or no errors.

Within the syllabi of courses participating in college-wide assessment, the Student Learning Outcomes (SLOs) are aligned to at least three overarching general education

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outcomes. The overarching outcome is then divided into course-related SLOs to show the relationship of the course-related SLOs to the overarching general education outcome. The college-wide assessment, itself, is aligned to learning outcome maps to show where and how the assessment captures the sub-outcomes.

Goals

Student learning outcomes goals for written communication are dependent on the type of test, assignment, or survey administered. Overall, direct in-class assessments have a target measure that 75% of students will score the equivalent of 70% or higher proficiency on the assignment; this target measure also meets a recommended target measure in annual program-level direct academic assessment, per Tyler's Academic Assessment Committee.

Goals for graduate testing will be determined upon analysis of the first administration of the test, to establish a baseline and to set goals for continuous improvement. John Tyler Community College plans to administer the Written Communication HEIghten test by Educational Testing Services (ETS, 2019).

Methods

Direct Assessment

Initially, the Tyler General Education Committee identified two courses for the first cohort of direct assessment:

ENG 112, English Composition II; and
HIS 122: United States History from 1877.

Lead faculty for both courses met with supporting faculty to develop and/or implement in-class assessments. To assess written communication in ENG 112, faculty will apply four dimensions (i.e., Context of and Purpose for Writing, Content Development, Sources and Evidence, Control of Syntax and Mechanics) of the AAC&U Written Communication VALUE rubric to the common final project for ENG 112 students (AAC&U, n.d.). The final project, developed over the course of the semester, is a 7-10 page academic research paper applying MLA or APA style. HIS 122 faculty administered a written assignment, using a modified AAC&U VALUE rubric for Written Communication with four dimensions (i.e, Content Development, Genre and Disciplinary Conventions, Sources of Evidence, Control of Syntax and Mechanics).

Course syllabi have been revised to demonstrate course alignment to at least three of the six overarching student learning outcomes for general education. Selection of

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overarching SLOs, divided by area or discipline, were based on results collected from a faculty survey provided at the conclusion of a college-wide assessment training.

For example, ENG 112, College Composition II, is a course selected to participate in the pilot (and Cohort 1) of this assessment plan. On its aligned syllabus, under the overarching SLO for Written Communication, the course-level SLOs are –

- Employ rhetorical strategies to communicate clearly and coherently in their writing.
- Create a variety of informal and formal text.

For HIS 122, United States History from 1877, the second course in the Written Communication pilot (and Cohort 1), the course-related SLO is –

- Write well-organized, clear, correct essays that effectively analyze, interpret, and discuss major themes, events, personalities, and ideas present in American history from 1877 to the present.

Student responses to the assessments are evaluated. Whenever possible and appropriate, student demographics will be disaggregated to identify proficiency by population.

During the 2019-2020 academic year, one additional course has been identified for direct in-class assessments as Cohort 2, ENG 241, Survey of American Literature I was selected to pilot an assessment in Spring 2020. The assessment they selected was a research paper using the same modified AAC&U VALUE rubric as the ENG 112 assessment.

For Cohort 1 courses, pilot in-class assessments were administered in Spring 2019. During the pilot phase (P0), approximately 25% of course sections were assessed. At the completion of the pilot phase, the results were collected and analyzed, with the expectation that the data from P0 and P1 will be available on a public-facing webpage and in a report to SCHEV in Fall 2020. Cohort 2 will follow a similar assessment roll-out schedule, albeit one year later.

At the conclusion of P2, three additional years of data will be collected (P3, P4, and P5). After the third year of collection, a trending analyses of P2 through P5 will be performed. Future direct in-course assessments will follow the cycle above; however, the academic year of each phase will be adjusted based on the year and cohort of course selection. Whenever possible and appropriate, student demographics will be disaggregated to identify proficiency by population.

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Graduate Testing and Indirect Assessment

In addition to direct in-course assessment of scientific literacy, John Tyler Community College (Tyler) will administer graduate testing in the Testing Center. Tyler will administer the Written Communication HEIghten test by Educational Testing Services (ETS, 2019). According to the ETS webpage, this assessment addresses four dimensions:

1. *Knowledge of social and rhetorical situations*: adapting or identifying writing for particular purposes, tasks, contexts and audience; and adhering to genre conventions, such as argument or exposition;
2. *Knowledge of conceptual strategies*: incorporating information from source texts to support ideas; accurately representing the source's meaning by using summary, paraphrase and quotation with appropriate citations; developing ideas using sufficient reasons, examples and evidence; presents ideas in an organized, logical and coherent sequence to make complex ideas clear and understandable; and adhering to discipline-specific conventions (e.g., standards of evidence, text organization);
3. *Knowledge of language use and conventions*: composing text that conveys meaning clearly by using apt word choice, sentence variety, tone, voice and style appropriate to the context, purpose and genre; composing text relatively free of errors in grammar, usage, mechanics, syntax and spelling; and demonstrating command of the fundamental skills needed to produce fluent text; and
4. *Knowledge of the writing process*: demonstrating strategic knowledge of the writing process, including prewriting, drafting, reviewing, revising and editing.

The intent of graduate testing is to capture student learning at the conclusion of a student's two-year degree program. The VCCS expects that colleges will demonstrate outcomes assessment for two-year degree graduates, so on-campus graduate testing is included in the overall outcomes assessment process, in addition to direct in-class assessment, to capture only students completing a two-year degree program.

An indirect assessment will also be administered during graduate testing. Tyler plans to pilot a faculty-developed indirect assessment for online administration at on-campus and off-site locations. The results of the graduate testing and indirect assessment will be provided in the sixth outcomes assessment report to SCHEV.

By administering an indirect assessment to complement graduate testing, Tyler hopes to capture those students who are unable to travel to campus to complete graduate testing, students at different levels of credential completion (i.e., beginning, middle, end), and dual enrollment students. There is an expectation that the results of indirect

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assessment will help guide student learning and continuous improvement. Results will be shared in Tyler21, a cross-college committee; the General Education Committee, a committee whose focus is general education outcomes assessment; and the Academic Assessment Committee, whose focus is annual academic assessment of two-year programs and short-term credentials (i.e., career studies certificates, and certificates).

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Assessment Plan: Professional Readiness

Definition

Professional Readiness is the ability to work well with others and display situationally and culturally appropriate demeanor and behavior.

Explanation of the Overarching Student Learning Outcome (SLO) and Application

Overarching SLO: Demonstrate skills important for successful transition into the workplace and pursuit of further education (Professional Readiness).

Professional Readiness, at the course-level, is measured across eight domains: interpersonal communication, workplace demeanor, teamwork, creative problem-solving, ethical reasoning, ethical values, leadership, and cultural awareness (ETS, 2019; NACE, 2019; AAC&U, n.d.). Interpersonal communication is defined as maintaining open, effective, and professional communications. Workplace demeanor is defined as demonstrating appropriate workplace and classroom demeanor and behavior. Teamwork is defined as working effectively with others on a task in a group or a team to achieve a common goal while maintaining constructive interpersonal relationships. Creative problem-solving is defined as solving a challenge or problem in innovative ways. Ethical reasoning is defined as demonstrating the ability to assess the reasoning of an argument, recognize and/or apply ethical perspectives to ethical dilemmas, and consider the ramifications of alternative actions. Ethical values are defined as demonstrating the ability to assess what one considers to be morally important or beneficial within the context of a problem and/or within a variety of settings. Leadership is defined as discerning and describing personal leadership style, strengths, and limitations. Cultural awareness, in the context of professional readiness and leadership, is defined as recognizing one's own multiple identities, experiences, and biases, and how these affect one's ability to lead, perceive, and/or interact with others.

The sub-outcomes for the overarching SLO for Professional Readiness are –

- Interpersonal Communication: Maintain open, effective, and professional communications.
- Workplace Demeanor: Demonstrate appropriate workplace and classroom demeanor and behavior;
- Teamwork: Work effectively with others on a task in a group or a team to achieve a common goal while maintaining constructive interpersonal relationships
- Creative Problem-Solving: Solve a challenge or program through innovative ways

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- Ethical Reasoning: Demonstrate the ability to assess the reasoning of an argument, recognize and/or apply ethical perspectives to ethical dilemmas, and consider the ramifications of alternative actions.
- Ethical Values: Demonstrate the ability to assess what one considers to be morally important or beneficial within the context of a problem and/or within a variety of settings.
- Leadership: Discern and describe personal leadership style, strengths, and limitations.
- Cultural awareness: Recognize one's own multiple identities, experiences, and biases, and how these affect one's ability to lead, perceive, and/or interact with others.

Within the syllabi of courses participating in college-wide assessment, the Student Learning Outcomes (SLOs) are aligned to at least three overarching general education outcomes. The overarching outcome is then divided into course-related SLOs to show the relationship between course-related SLOs to the overarching general education outcome. The college-wide assessment, itself, is aligned to a learning outcome map to capture the relationship between the outcome and the assessment.

Goals

Student Learning Outcomes goals for professional readiness are dependent on the type of test, assignment, or survey administered. Overall, direct in-class assessments have a target measure that 75% of students will score the equivalent of 70% or higher proficiency on the assignment; this target measure also meets a recommended target measure in annual program-level direct academic assessment, per Tyler's Academic Assessment Committee. Proficiency levels by domain targets have yet to be determined; it is anticipated the pilot will help establish the baseline for goal-setting.

Goals for graduate testing will be determined upon analysis of the first administration of the test, to establish a baseline and to set goals for continuous improvement. As a test originally targeted to community colleges and to colleges that promote career pathways, Noeth (2016) outlines the research used in the selection of six behavioral competency domains in the Educational Testing Services (ETS) WorkFORCE Assessment for Job Fit to identify potential skill gaps: (1) flexibility and resilience, (2) initiative and perseverance, (3) responsibility, (4) teamwork and citizenship, (5) customer services orientation, and (6) problem solving and ingenuity.

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Methods

Direct Assessment

Initially, the Tyler General Education Committee identified two courses for the first cohort of direct assessment:

BUS 100, Introduction to Business; and
PHI 220, Ethics.

In addition to being part of the core of the General Studies AS degree, BUS 100 is captured in 9 additional two-year degree programs; PHI 220 is captured in 25 additional two-year degree programs. Therefore, the results of these direct course-level assessments intend to show outcomes assessment across a broad range of two-year programs at the College.

Lead faculty for both courses met with supporting faculty in Fall 2018 to develop direct assessments. Faculty in BUS 100 administered a project-based assignment with a faculty-developed rubric. Lizzio et al. (2004) emphasizes the benefits of implementing active learning activities to develop professional readiness. Faculty in PHI 220 administered an ethical reasoning exercise, the Trolley Problem, with a modified rubric, using content from the Association of American Colleges and Universities (AAC&U) VALUE rubric for Ethical Reasoning.

Course syllabi have been revised to demonstrate course alignment to at least three of the six overarching student learning outcomes for general education. Selection of overarching SLOs, divided by area or discipline, were based on results collected from a faculty survey provided at the conclusion of a college-wide assessment training.

BUS 100, Introduction to Business, is a course selected to participate in the pilot (and Cohort 1) of this assessment plan. On its aligned syllabus, under the first overarching SLO for Professional Readiness, the course-level SLOs are –

- Describe and apply logical standards and standards of rational discussion.
- Construct and defend arguments in support of philosophical claims; construct and defend arguments against standard philosophical positions and common objections.
- Identify and critically evaluate the positions taken by great philosophers on standard philosophical questions in the history of Western philosophy.
- Identify, categorize, and systematically evaluate basic assumptions and knowledge claims.

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For PHI 220, Ethics, the second course in the Professional Readiness pilot (and Cohort 1), the course-related SLOs are –

- Explain, apply and assess basic ethical theories and terms.
- Construct and defend arguments in support, in defense, and against various ethical claims.
- Explain and apply standards for good critical thinking and rules of rational discussion.

Over the long-term, Tyler intends to identify and develop assessments for additional courses within the general education *core*, as part of its commitment to continuous improvement in learning. The general education *core* comprises the courses within the General Studies AS degree program. These courses are also contained, at least in part, within all two-year degrees offered at Tyler. As such, general education outcomes assessment captures student learning across all programs at Tyler, not only the General Studies AS degree program.

During the 2019-2020 academic year, one additional course has been identified for direct in-class assessments as Cohort 2, HLT 160, Personal Health and Fitness, was selected to pilot an assessment in Spring 2020. The assessment they selected was a group assignment.

For Cohort 1 courses, pilot in-class assessments were administered in Spring 2019. During the pilot phase (P0), approximately 25% of course sections were assessed. At the completion of the pilot phase, the results were collected and analyzed, with the expectation that the data from P0 and P1 will be available on a public-facing webpage and in a report to SCHEV in Fall 2020. Cohort 2 will follow a similar assessment roll-out schedule, albeit one year later.

At the conclusion of P2, three additional years of data will be collected (P3, P4, and P5). After the third year of collection, a trending analyses of P2 through P5 will be performed. Future direct in-course assessments will follow the cycle above; however, the academic year of each phase will be adjusted based on the year and cohort of course selection. Whenever possible and appropriate, student demographics will be disaggregated to identify proficiency by population.

<u>Graduate Testing and Indirect Assessment</u>

In addition to direct in-course assessment of critical thinking, John Tyler Community College (Tyler) will administer graduate testing in the Testing Center. Tyler planned to

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use the WorkFORCE Assessment for Job Fit by ETS to capture student learning at the conclusion of a student's two-year degree program; however, ETS is discontinuing the test. As a result, Tyler will seek another similar external test or develop one that satisfies the intent of graduate testing. The VCCS expects that colleges will demonstrate outcomes assessment for two-year degree graduates, so on-campus graduate testing is included in the outcome assessment process, in addition to direct in-class assessment, to capture only students completing a two-year degree program.

The direct and indirect assessments were to be administered in Spring 2020, but due to the unavailability of the ETS assessment, testing of this outcome will be moved to the end of the cycle. This will allow Tyler time to seek alternatives.

The indirect assessment will be administered online, and Tyler hopes to capture those students who are unable to travel to campus to complete graduate testing, students at different levels of credential completion (i.e., beginning, middle, end), and dual enrollment students. There is an expectation that the results of indirect assessment will help guide student learning and continuous improvement. Results will be shared in Tyler21, a cross-college committee; the General Education Committee, a committee whose focus is general education outcomes assessment; and the Academic Assessment Committee, whose focus is annual academic assessment of two-year programs and short-term credentials (i.e., career studies certificates, and certificates).

In addition to graduate testing and indirect online assessment, John Tyler Community College plans to collect and report ancillary data and information related to professional readiness, as appropriate. This data may include disaggregated data of student populations.

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