

Category One: Helping Students Learn

Processes

1P1

LCCC has established four core abilities (general education outcomes) for all students pursuing degrees. Under the current model, the primary mission of the general education component is to produce graduates who

- **L**earn responsibly by actively expanding their knowledge and skills;
- **C**ommunicate effectively through a variety of methods and media;
- **C**ritically think, using problem-solving strategies and creative methods; and
- **C**ollaborate and build community with others by interacting in a diverse, complex, and global environment.

The Student Learning Assessment Committee (SLAC) led the charge to determine these shared objectives for the general education core. SLAC is a cross-functional team with the following representation:

1. One representative from each of the following areas, selected by the area from the faculty or professional staff with teaching responsibilities:
 - a. Albany County Campus
 - b. Arts and Humanities
 - c. Business, Agriculture, and Technology
 - d. Health Sciences and Wellness
 - e. Education, Natural, and Social Sciences
 - f. Workforce and Community Development
2. One faculty member from the Library
3. One dean
4. One Student Services representative
5. Faculty Assessment Coordinator
6. Vice President of Instruction (ex officio)
7. Manager of Institutional Research (ex officio)
8. Secretary, Instructional Services (ex officio)

LCCC's original general education outcomes were written by a faculty team in the mid 1990's in response to the Higher Learning Commission's requirement of all colleges for a plan to assess student learning. This original model consisted of six general competencies, each of which has several objectives (a total of 27 objectives). During the March 2005 focused visit, the team indicated this was too many objectives and recommended they be revised. As a result the SLAC began the process to create the current objectives. The development process included several rounds of submitting drafts to the faculty as a whole, as well as the Learning Leadership Team ([LLT] consisting of the VP of Instruction [VPI], the deans, and the library director), for feedback. This feedback was reviewed and incorporated into the model. The current model was formally presented at an all-college in-service in January 2006. The SLAC has created a student learning assessment plan, which includes the creation of measures for each of the core abilities (see 1R1, 1R2, and 1I1) and a schedule for reviewing the objectives.

1P2

As part of the program development and approval process, faculty establish program learning outcomes. The process for determining these outcomes and the parties involved in setting them varies by program. Typically, outcomes are based on the requirements of accrediting bodies (or associated certification exams), standards of professional organizations, and the needs of transfer institutions (particularly the University of Wyoming). Input is solicited from faculty, division deans, and program advisory committees (when applicable) that include members of the local community. For example, Workforce and Community Development's (WCD) workforce/professional development programs are often developed in partnership with a specific business and customized to its needs. The College recognizes an opportunity to develop an institution-wide procedure for reviewing and revising specific program learning outcomes.

1P3

Proposed new credit programs undergo an extensive review process. The first step of the program development process is to conduct a needs assessment to determine viability and sustainability of the proposed program. The formal program proposal includes

- Expected student learning outcomes and the assessment of student learning and completion follow-up;
- Required courses (existing and new);
- Faculty, staff, resource, and budget implications;
- Input from and coordination with citizens, business and industry, K-12 education and higher education;
- Projected demand in Wyoming and the nation for five years from the proposed implementation date (career/technical programs);
- Available program and course articulations with likely transfer institutions in the region (particularly for transfer AA and AS programs); and
- Student recruitment and program marketing strategies.

Once a program is approved by the College, it is submitted for approval to the Wyoming Community College Commission (WCCC). WCCC review criteria include alignment with state interests as outlined in the state strategic plan and integration with the Wyoming community college system. New courses follow a similar process, except they do not go to the WCCC for approval. The College's Strategic Plan will necessitate review of these processes.

Noncredit offerings (professional/workforce development programs and life enrichment courses) are generally designed based on stakeholder needs and demands. WCD representatives meet one-on-one with employers to ensure class objectives and outcomes will facilitate student learning. Life Enrichment staff monitor enrollment trends and expressed interest when developing course offerings.

1P4

Student learning goals, career needs, and the employment market can vary. The College employs several different practices to design responsive academic programming.

- Academic program reviews, conducted every five years, include an assessment of how well a program is meeting the needs of its stakeholders (including students, the community, and the

College), strategies for strengthening the program, and recommendations for continuous improvement.

- Articulation agreements with four-year institutions are maintained to assist students whose learning goal is to transfer. Within the state the seven community colleges and the University of Wyoming have regular discipline articulation meetings.
- Many programs, including all career and technical programs, have advisory committees with representation from the College, business and industry, and students. These groups assist with curriculum review and identification of community needs and serve as liaisons between the programs and various stakeholder groups.
- The Center for Lifelong Learning under Workforce and Community Development monitors labor market trends and works with regional employers to identify and address changing needs in the workplace.
- The new program approval process (described in 1P3) includes labor market information and alignment with state interests.

1P5

The College does not currently have a documented institution-wide process for determining the preparation required of students for programs or courses. LCCC relies on faculty experience and expertise, transfer requirements, industry standards, and accreditation requirements to recommend prerequisites at three levels: individual courses, sequences of courses, and programs with closed admissions (i.e., additional admissions requirements). The College has initiated an action project to review and modify, as necessary, all course prerequisites. One outcome of the project will be documented criteria for determining prerequisites. The project will also provide baseline data for future prerequisite review and modification.

There is a uniform, institution-wide process for approval of course prerequisites. Proposed prerequisite requirements for new courses or changes in prerequisites for existing courses are reviewed by the dean of that area, the Learning Leadership Team (LLT), which consists of the Vice President of Instruction and the deans, and the Academic Standards Committee (ASC). If the ASC approves the proposed requirements, these are sent back to the LLT for final approval.

Several mechanisms are used to determine the level of student preparation. These include evidence-based data such as ACT, COMPASS or Nursing Entrance Exam scores, minimum grades in specific courses, and appropriate preparation taken from other programs, past experience, or accepted standard sequences from similar programs.

1P6

These requirements are actively presented to current and prospective students at several stages in the educational process. At the broadest level, communication of required preparation starts with the recruiting and admissions process which can begin as early as junior high school. LCCC has information on popular social networking sites such as Facebook and Twitter. Course prerequisites and degree requirements are published in the College catalog, available in CDs and online. Information about curriculum offerings and programs of study is also available on the College's website. On a face-to-face level, members of the Admissions Team work with faculty members to distribute information about

programs. Admission representatives and various faculty also travel to attend college fairs locally and across the region.

Prior to enrollment, LCCC has several processes to communicate with prospective students. The Disability Resource Center (DRC) attends Individualized Education Plan meetings for identified students planning to enroll at LCCC. The Gear-Up program works with college-bound students to develop a plan of study while in junior high to meet future goals. College and high school advisors work together through the new Perkins Career Pathways. Additionally, students in the concurrent/dual enrollment programs receive this information.

At the time of enrollment, this communication continues through the advising process, newly revised as a result of one of LCCC's first action projects. During the initial advising conversation, advisors review degree programs for students' declared majors and explain the functions of the catalog to the students. Some degree programs have "checklist" sheets to facilitate monitoring of progress toward their degree.

Continuing students have access to a computerized degree audit feature, which allows them to formally monitor their progress towards fulfilling graduation requirements. Each student with a declared major has a program advisor to assist in communication.

The College's administrative database is designed to limit entry into courses for which the prerequisites have not been met. However, the recent expansion of online registration has resulted in the identification of gaps in this process, resulting in students registering for courses for which they do not have the prerequisites. This issue is under review but has yet to be resolved.

1P7

Students at LCCC are empowered to select their preferred course of study. LCCC provides several mechanisms to assist them in their program selection. Entering students meet with Advising Center staff. Once they have expressed interest in a specific program, students are assigned an advisor who is familiar with that field of study. The Kuder Career Planning System, which helps students identify programs of study that match their needs, interests, and abilities, is available in the Career Center, the Advising Center, and the Center for Secondary Students (as well as to the community at large through the Hub@LCCC).

1P8

LCCC is an open admissions institution. However, many students come to LCCC unprepared for the rigors of college-level courses. Published [LCCC policy](#) requires all entering students unless otherwise exempted to undergo basic skills assessment in the areas of reading, writing, and mathematics prior to their initial class registration at LCCC. LCCC uses scores from either the ACT or the COMPASS Academic Skills Assessment to place students into appropriate developmental or college-level courses.

Developmental courses are offered to help students remediate their skill deficits before entering a college-level course for which they are not prepared. Table 1P8 shows the percentage of entering students placing below college-level in mathematics, reading, and writing for the past three years. The College offers late-start developmental math courses to allow students to 'drop-back' if they are encountering difficulties in their current course. The College is also piloting a competency-based

developmental writing course that assists students in identifying and addressing the exact competencies they lack. The pilot course is an open-entry, open-exit course allowing students to exit upon mastery of the competencies required for college-level courses. Late-starting college-level English courses are available to these students.

Table 1P8: Percent of Entering Students Placing Below College Level¹

	Mathematics	Reading	Writing
Fall 2007	71.6%	15.9%	26.3%
Fall 2008	70.7%	14.9%	24.0%
Fall 2009	72.4%	15.8%	27.0%

¹Of those having placement scores.

Source: Colleague Records

In addition to developmental courses, LCCC provides services the Adult Career and Education System (ACES), a program designed to help students develop the skills necessary for continued education or meaningful employment through combined training in academics, communication skills, and basic computer skills. Classes offered include:

- Adult Basic Education (ABE) – ABE is provided for students who want to upgrade their basic reading, writing, and math skills.
- Generalized Educational Development (GED) – Classes are offered to help prepare students to complete the GED tests.
- Adult Secondary Education (ASE) – Classes are offered in reading, math and writing on an individualized basis for students who already have their high school diploma or GED but want to improve their basic skills to upgrade their employment opportunities or to pursue further education.
- Literacy – Individualized instruction is provided to adult students who are functioning below the 4th grade reading level and math level.
- English for Speakers of Other Languages (ESOL) – Opportunities are provided in this program for students to reach their language goals, such as understanding, speaking, reading and writing the English language.

Additionally, LCCC offers many services to assist underprepared students. The Student Success Center offers tutoring services (face-to-face, online through Smarthinking.com, and computer-assisted) to help students overcome specific course-related deficits that hinder their success. The tutoring labs are College and Reading Learning Assistance (CRLA) certified, which requires LCCC to provide ten hours of training to tutors each year. Tutors who complete ten hours of training and 25 hours of tutoring are eligible for CRLA Level 1 certification. Eighteen (18) of 29 tutors have this certification. Finally, the Ludden Library helps students learn to use library resources and instructors are available to work individually with students.

1P9

LCCC does not currently employ a mandatory screening process to assist students to identify their preferred learning styles. Students enrolled in the Freshman Seminar course complete a learning style inventory and the topic is discussed in the class. Participating students develop and learn to apply their own personal successful learning strategies. The Freshman Seminar course is a required course for entering students receiving institutional scholarships and encouraged for all other entering students.

Additionally, in an effort to assist students who do not take the Freshman Seminar, the Student Success Center offers a variety of learning styles workshops throughout the semester. Faculty are encouraged to deliver instruction using a variety of teaching styles so that multiple learning styles are addressed. Table 1P9 shows Community College Faculty Survey of Student Engagement (CCFSSE) results on the use of class time.

Table 1P9: CCFSSE Results – what percent of class time is spent on the following activities?

Percent of Class Time	Lecture	Teacher-Led Discussion	Teacher-Student Shared Responsibility	Student Computer Use	Small Group Activities	Student Presentations	In-Class Writing	Hands-On Practice
0%	0%	5%	22%	67%	19%	40%	59%	29%
1 to 9%	26%	31%	38%	16%	28%	33%	33%	22%
10 to 19%	16%	26%	13%	5%	22%	16%	2%	9%
20 to 29%	10%	17%	11%	9%	12%	5%	2%	7%
30 to 39%	12%	10%	13%	0%	10%	5%	2%	9%
40 to 49%	5%	3%	2%	2%	2%	0%	0%	7%
50 to 74%	21%	3%	2%	0%	5%	2%	3%	9%
75 to 100%	10%	3%	0%	2%	2%	0%	0%	29%

Source: Community College Faculty Survey of Student Engagement, Spring 2009 Results

1P10

The College offers a variety of services and programs to address the special needs of different student groups.

- The Disability Resource Center (DRC) provides services and adaptive technology to students with documented disabilities.
- The campus is ADA compliant.
- The International Student Office offers programs and services for international students.
- The Transitional Services Office offers programs and services for single parents, displaced homemakers, and other at-risk populations.
- The SAGE TRiO program supports first-generation, low income students.
- Residential Living and Learning offers services and activities for residence hall students.
- Individuals 60 and older have the privilege of enrolling for credit classes at a cost of \$10 per credit hour.
- The College offers a wide-range of course delivery systems to meet the needs of student subgroups, commuters, etc. (See 1P12.)

The Campus Living and Learning program, together with the Counseling and Student Wellness and the Advising Center, offers activities and workshops, such as stress management, grieving loss support group, and the Health Education and Resource Team (HEART).

While many services are in place, there is not a systematic process to identify emerging needs or assess the effectiveness of existing programs and services.

1P11

The College uses several mechanisms to define, document, and communicate expectations for effective teaching and learning. These mechanisms include the following:

- Program review process;
- New faculty mentoring program;
- Faculty professional development, including in-service activities;
- Guidelines and training for concurrent enrollment faculty;
- Student learning assessment (general education core abilities and program-level competencies);
- Faculty evaluation and faculty position descriptions (currently in revision);
- Utilization of WIDS (Worldwide Instructional Design System) for instructional planning;
- Individual department professional development and meetings;
- Adjunct faculty orientation and the adjunct faculty handbook; and
- [College catalog](#) and [student handbook](#).

1P12

The College employs a diverse range of efforts to an efficient and effective course delivery system. These include the following.

- Course scheduling
 - Full semester and short sessions (five to eight weeks) within the semester (See Table 1P12.1)
 - Alternating face-to-face and online offerings
 - Alternating day and evening offerings
 - Interim sessions
 - Summer sessions
 - Late start classes
 - Intensive weekend classes
 - Customized training based upon business needs
- Delivery methods and technologies (See Table 1P12.2)
 - Hybrid offerings (online shells [ANGEL] are created for each credit course)
 - Online courses
 - Telecourses
 - Compressed video
 - SMART or technology-enhanced classrooms (90% of Cheyenne campus classrooms, 97% of Albany County Campus, 33% of Eastern Laramie County, and 50% at FE Warren AFB)
 - Concurrent enrollment
- Campuses and outreach centers (See Table 1P12.2)
 - Albany County Campus
 - Eastern Laramie County Outreach Center
 - FE Warren AFB Outreach Center
- Other
 - Articulation meetings

- Student feedback
- Standardized syllabus format

Table 1P12.1 Less Than Full Semester Offerings by Location/Delivery Method

Location/Delivery Method	2007-2008			2008-2009		
	# of Sections	% of Sections	Duplicated Enrollment	# of Sections	% of Sections	Duplicated Enrollment
Albany County Campus	63	11.6%	660	115	15.7%	1,592
Cheyenne Campus	327	60.2%	3,550	462	63.1%	6,268
Business Training	2	0.4%	7	12	1.6%	78
Eastern Laramie County	5	0.9%	37	6	0.8%	54
F.E. Warren AFB	37	6.8%	399	38	5.2%	502
Other Cheyenne Sites	2	0.4%	15	3	0.4%	47
Distance Offerings						
Compressed Video	10	1.8%	62	10	1.4%	109
Online Classes	97	17.9%	1,222	86	11.7%	1,485
Totals	534		5,952	732		10,135

Source: Colleague Records

Prepared by: LCCC IR Office, AMM, 09/15/2009

Table 1P12.2 Offerings by Location/Delivery Method

Location/Delivery Method	2007-2008			2008-2009		
	# of Sections	% of Sections	Duplicated Enrollment	# of Sections	% of Sections	Duplicated Enrollment
Albany County Campus	308	13.4%	3,764	320	14.5%	4,874
Cheyenne Campus	1,361	61.0%	16,402	1,346	61.0%	19,257
Business Training	22	1.0%	199	28	1.3%	192
Eastern Laramie County	10	0.5%	76	10	0.5%	78
F.E. Warren AFB	47	2.1%	495	44	2.0%	573
Other Cheyenne sites	3	0.1%	21	5	0.2%	63
University of Wyoming	33	1.5%	688	31	1.4%	766
Distance Offerings						
Compressed Video	22	1.0%	155	20	0.9%	184
Online Classes	298	13.4%	5,230	291	13.2%	5,674
Telecourse	3	0.1%	30	3	0.1%	66
Concurrent Enrollment						
Burns High School				2	0.1%	21
Central High School	42	1.9%	608	35	1.6%	576
East High School	40	1.8%	526	34	1.5%	579
Laramie High School	14	0.6%	183	14	0.6%	216
Pine Bluffs High School	17	0.5%	92	12	0.5%	49
Riverton High School	5	0.2%	33	3	0.1%	16
Rock River High School				1	0.0%	2
Triumph High School				4	0.2%	46
Whiting High School	6	0.3%	18	3	0.1%	9
Totals	2,231		28,520	2,206		33,241

Source: Colleague Records

Prepared by: LCCC IR Office, AMM, 09/15/2009

While LCCC employs several mechanisms for course delivery, there is not currently a system in place to assess the effectiveness of these efforts. As the College implements the [Strategic Plan](#), assessment processes in this area will be developed.

1P13

The College utilizes several methods to ensure programs and courses are up to date and effective. Outside accrediting agencies provide input for curricula and programs. Many of these programs also have advisory committees which provide input from future employers (people who use the knowledge, skills, and abilities of LCCC students).

Internally, the College has a formal program review process to assess the health and effectiveness of programs of study. The process is an intensive review that includes history, goals, enrollment, curriculum review, full and part-time faculty, assessment of student learning, student feedback, and program operations. Programs are reviewed on a five-year cycle by program faculty, LLT, President's Cabinet, and the Board of Trustees. This review process has worked well for academic programs; LCCC is implementing a similar process for learner support areas.

Another internal process is assessment of student learning in the core abilities (see 1P1). Rubrics have been developed by faculty teams for each of the four core abilities; these will be fully implemented by the end of the 2010-2011 academic year. Other measures include the ETS Proficiency Profile (formerly known as the Measure of Academic Proficiency and Progress [MAPP]), completed by all students applying for graduation with a degree, and the Community College Survey of Student Engagement (CCSSE). The CCSSE results are also shared with faculty to assist in developing optimal active and engaged learning environments.

Additionally, the College supports professional development for faculty to assist them in staying current in their fields and teaching trends. This support includes travel to workshops/conferences and sabbatical leave. Faculty members identify professional development goals as part of the annual evaluation process.

1P14

There are three routes that could result in the decision to terminate a program: a financial crisis, the regular program review process, or the interim program review. During a financial crisis, programs may be discontinued based on criteria established for that specific situation.

All programs undergo a regularly scheduled program review. Each program review includes an examination of the viability of courses, including history and enrollment, as well as plans for modification or discontinuation of those courses. The review leads to a plan for improving the program's processes and outcomes and a recommendation that the program be:

- a. Expanded or augmented with additional resources,
- b. Continued in its present form and at its current resource level,
- c. Changed in form or direction,
- d. Strengthened and reviewed earlier than the regular review cycle,

- e. Consolidated with other programs
- f. Phased out.

This recommendation, along with an appropriate plan of action, is presented to the Learning Leadership Team (LLT) by program faculty. The program review is formally presented to the Board of Trustees following final review by the President’s Cabinet.

In addition, the College has an interim program review that is used to monitor the progress of a program that is still in a developmental phase, provide an update or additional details on issues or initiatives on which a department is working, address a specific area of concern, or when enrollment data warrants.

When a program is being terminated, enrolled students are allowed to complete the program, transfer credits to a similar program or, if that is not feasible because of a financial crisis, arrangements are made with an institution having a similar program to facilitate student transfer.

1P15

While the College has several subsystems in place to determine and address student and faculty needs in specific areas, there is not currently an overarching, coordinated process to address this issue. During the fall 2009 semester, the College initiated a climate survey/focus survey process. Although the initial effort was focused on Category 5 – Leading and Communicating, the process is being expanded through the use of the Noel-Levitz College Employee Satisfaction Survey. These results, when available, will assist LCCC in determining faculty needs in these areas.

Existing subsystems for determining student and faculty needs include mandatory assessment and placement testing of entering students (see 1P8), the financial aid and scholarship application process, and regular surveys of faculty by the library and ITS (Integrated Technology Systems). In addition, the Student Success Center tracks requests for tutoring in specific courses to align staffing with student needs.

Existing subsystems for addressing student and faculty needs include those presented in Table 1P15 below.

Table 1P15: Programs, Services, and Activities to Address Student and Faculty Needs

For Students		For Faculty
<ul style="list-style-type: none"> • Disability Resource Center • Tutoring services in the Student Success Center • Testing • Counseling • Advising • Library • Science labs 	<ul style="list-style-type: none"> • Orientation and Freshman Seminar • Foreign language lab • Career Center • SAGE TRiO • Transitional Services • Website survey questions • Computer labs 	<ul style="list-style-type: none"> • Leadership Academy • ITS Help Desk • In-house technical workshops • Professional development opportunities such as conferences and workshops • In-service activities • SLAC core ability rubric training • Center for Learning Technologies

1P16

Campus Living and Learning (CL&L) is the area of campus that coordinates co-curricular activities. In 2010-2011, CL&L will develop an operational plan with objectives that are linked to the Strategic Plan and the four core abilities. The College recognizes the opportunity to strengthen the alignment of co-curricular goals and curricular learning objectives.

1P17

Student attainment of learning and development objectives is determined using both aggregate and student-specific methods. The aggregate method is the ETS Proficiency Profile (formerly known as the MAPP), which provides data on graduates' attainment of LCCC's core abilities. Student-specific methods include the review of student records at two levels. The program advisor reviews for completion of program-specific course requirements and the degree audit process reviews for completion of general education requirements. Some programs have capstone courses in which students are assessed to determine if they have met program learning expectations.

After students have completed their studies at LCCC, information is gathered by examining licensure pass rates, certifications, and employer survey results. The College also analyzes GPA data about LCCC students who transfer to the University of Wyoming (UW).

1P18

The system for assessing student learning has two key components: core ability (general education) assessment and program assessment. The College's Student Learning Assessment Committee (SLAC) has developed guidelines and provides reporting forms to address the student attainment of the core abilities. With the development and final implementation of core ability assessment rubrics (see 1P13) in conjunction with the College's [Strategic Plan](#), the emphasis of SLAC activities is shifting to program-level assessment of student learning. While there is a standard reporting process for program-level assessment, this has been inconsistently implemented. In 2010-2011, the SLAC, under the direction of LLT, will focus on working with faculty of those programs undergoing scheduled program review to systematically develop learning outcomes, identify and implement appropriate measures, and document their results.

Results

1R1

LCCC regularly collects several measures of student learning and development. These include the following.

- Core ability measures such as the MAPP (see 1R2)
- Community College Survey of Student Engagement (CCSSE)
- Fall-to-fall persistence rates
- Graduation and transfer rates
- Course retention rates (by location/department/delivery)
- Student success rates (by location/department/delivery)

- Licensure/certification exam pass rates
- GPA after transfer to UW
- Graduate survey data
- Locally developed core ability rubric data (being piloted in 2010-2011)

1R2

As noted above, LCCC has established four core abilities. The annual Student Learning Assessment Report results assessment results in detail; these results are summarized below.

Learn Responsibly has two measures based upon CCSSE results. Overall, sophomore responses were at or above the national percentage for all desirable student behaviors listed (Measure #1.) However, in the undesirable behaviors category (Measure #2), LCCC students scored below the national percentage for skipping class, but just slightly above the national average for students coming to class unprepared.

Table 1R2.1 CCSSE Results for Learn Responsibly

		2007 CCSSE Results				2009 CCSSE Results			
		FR	SO	All LCCC	Nat'l Cohort	FR	SO	All LCCC	Nat'l Cohort
Desirable Behaviors									
1 – 4c About how often have you prepared two or more drafts of a paper before turning it in?	often	32.2%	30.3%	31.5%	29.5%	29.3%	28.2%	28.8%	29.5%
	very often	26.3%	23.8%	25.3%	19.5%	19.0%	21.3%	19.9%	19.2%
	total	58.4%	54.1%	56.8%	49.0%	48.3%	49.5%	48.7%	48.7%
	<i>n</i>	320	185	505	306,692	441	287	728	396,648
2 – 12i How much has your experience at this college contributed to your development in learning effectively on your own?	quite a bit	41.1%	42.3%	41.6%	40.6%	42.1%	41.8%	42.0%	40.5%
	very much	23.9%	27.5%	25.2%	27.0%	21.3%	34.4%	26.5%	28.3%
	total	65.0%	69.8%	66.8%	67.6%	63.4%	76.2%	68.5%	68.8%
	<i>n</i>	314	189	503	306,692	437	285	722	391,359
3 – 12j How much has your experience at this college contributed to your development in understanding yourself?	quite a bit	29.2%	36.5%	31.9%	31.3%	28.3%	31.5%	29.6%	31.5%
	very much	17.1%	18.0%	17.5%	21.2%	13.7%	25.2%	18.2%	22.5%
	total	46.3%	54.5%	49.4%	53.5%	42.0%	56.7%	47.8%	54.0%
	<i>n</i>	315	189	504	306,692	438	286	724	390,866
4 – 12l How much has your experience at this college contributed to your development in developing a personal code of ethics	quite a bit	28.0%	27.0%	27.6%	26.0%	22.7%	25.1%	23.6%	26.8%
	very much	9.9%	12.7%	10.9%	15.4%	10.3%	20.9%	14.5%	16.6%
	total	37.9%	39.7%	38.6%	41.4%	33.0%	46.0%	38.1%	43.4%
	<i>n</i>	314	189	504	306,692	437	287	724	390,751
Undesirable Behaviors									
1 – 4e About how often have you come to class unprepared?	often	9.8%	10.2%	10.0%	10.6%	9.4%	12.5%	10.6%	9.9%
	very often	6.0%	6.5%	6.2%	3.9%	4.6%	3.8%	4.3%	3.6%
	total	15.8%	16.7%	16.1%	14.5%	14.0%	16.3%	14.9%	13.5%
	<i>n</i>	316	186	502	306,692	437	289	726	396,049
2 – 4u About how often have you skipped class?	often	7.9%	5.8%	7.1%	4.3%	3.9%	5.2%	4.4%	11.7%
	very often	3.8%	4.2%	4.0%	1.9%	2.3%	2.4%	2.3%	4.2%
	total	11.7%	10.1%	11.1%	6.2%	6.2%	7.6%	6.7%	15.9%
	<i>n</i>	317	189	506	306,692	440	288	728	395,496

Source: Student Learning Assessment Report, Eighth Edition, October 2009

The assessment of **Communicate Effectively** is becoming more robust with the faculty-developed rubrics for both oral and written communication. Baseline data was collected during the spring 2009 semester; this data needs to be provided to faculty for benchmarking purposes. In addition, as a result of the pilot,

the oral communications rubric was revised to overcome the measurement issues noted in the Presentation Aids and Question and Answer elements. The other measures for this core ability were the 2009 results of the CCSSE and locally-added questions for graduating students completing the Measure of Academic Progress and Proficiency (MAPP) examination. Overall, LCCC student percentages were at or above the desired benchmarks. Of particular note is students' strong agreement with LCCC's contribution to their skills in using computers and information technology; their level of agreement was noticeably above the national average. For continuous improvement purposes, the College needs to ensure that adequate training occurs and that data continues to be collected for both faculty- developed rubrics. An additional measure to be considered is the use of employer data. Although this data is an indirect measure, it can be used to triangulate the other assessment results for this core ability.

Table 1R2.2 CCSSE Results for Communicate Effectively

	Response	2007 CCSSE Results				2009 CCSSE Results			
		FR	SO	All LCCC	Nat'l Cohort	FR	SO	All LCCC	Nat'l Cohort
1 – 12c How much has your experience at this college contributed to your development in writing clearly and effectively?	Quite a bit	40.2%	48.1%	43.2%	37.7%	37.8%	46.7%	41.3%	37.8%
	Very much	13.9%	22.2%	17.0%	20.9%	13.7%	26.1%	18.6%	21.8%
	Total	54.1%	70.4%	60.2%	58.6%	51.5%	72.8%	59.9%	59.6%
	N	316	189	505	306,692	437	287	724	391,538
2 – 12d How much has your experience at this college contributed to your development in speaking clearly and effectively?	Quite a bit	38.0%	39.7%	38.6%	35.0%	36.0%	39.9%	37.5%	35.2%
	Very much	10.8%	23.3%	15.4%	19.1%	10.1%	27.6%	17.0%	20.2%
	Total	48.7%	63.0%	54.1%	54.1%	46.1%	67.5%	54.5%	55.4%
	N	316	189	505	306,692	436	286	722	391,391
3 – 12g How much has your experience at this college contributed to your development in using computers and information technology?	Quite a bit	36.2%	40.7%	37.9%	32.4%	37.2%	38.7%	37.8%	32.9%
	Very much	22.9%	31.2%	26.0%	25.5%	26.6%	36.2%	30.4%	26.7%
	Total	59.0%	72.0%	63.9%	57.9%	63.8%	74.9%	68.2%	59.6%
	N	315	189	504	306,692	436	287	723	391,011

Source: Student Learning Assessment Report, Eighth Edition, October 2009

Of all of the core abilities, **Critically Think** contains the greatest variety of direct and indirect measures. The direct measure of this core ability is the Measure of Academic Proficiency and Progress (MAPP). These results revealed that all Reading/Critical Thinking and Mathematics Proficiency scores, along with the other content sub-scores in Humanities, Social Sciences and Natural Sciences were at or exceeded the national percentage for 2008-09 graduates. In addition, the 2009 results of the CCSSE, and the locally-added questions for the MAPP examination showed that LCCC graduates and/or sophomore students scored at or above the desired benchmarks. Although LCCC freshman scored below the national cohort for thinking critically and solving numerical problems, all three areas showed the desired "value-added" improvement in scores from freshman to sophomore level students. As a whole, LCCC met all of the benchmarks set for this category, but to further enhance the assessment of this outcome, the rubric for this core ability needs to be piloted and results integrated into the plan, employer feedback should be explored, and the need for a common research-oriented rubric needs to be considered.

Table 1R2.3 CCSSE Results for Critically Think

	Response	2007 CCSSE Results				2009 CCSSE Results			
		FR	SO	All LCCC	Nat'l Cohort	FR	SO	All LCCC	Nat'l Cohort
1 – 4d About how often have you worked on a paper or project that required integrating ideas or information from various sources?	Quite a bit	43.1%	41.9%	42.7%	36.7%	40.1%	34.3%	37.8%	37.2%
	Very much	25.8%	36.6%	29.8%	22.3%	28.1%	42.9%	34.0%	23.0%
	Total	68.9%	78.5%	72.4%	59.0%	68.2%	77.2%	71.8%	60.2%
	<i>N</i>	318	186	504	306,692	441	289	730	396,896
2 – 12e How much has your experience at this college contributed to your development in thinking critically and analytically?	Quite a bit	44.8%	48.1%	46.0%	41.5%	40.5%	41.1%	40.7%	41.8%
	Very much	18.7%	29.1%	22.6%	25.0%	22.7%	34.5%	27.3%	26.6%
	Total	63.5%	77.2%	68.7%	66.5%	63.2%	75.6%	68.0%	68.4%
	<i>N</i>	315	189	504	306,692	437	287	724	391,256
3 – 12f How much has your experience at this college contributed to your development in solving numerical problems?	Quite a bit	33.9%	47.6%	39.0%	33.6%	32.3%	37.3%	34.3%	33.7%
	Very much	18.8%	15.3%	17.5%	19.9%	14.9%	26.8%	19.6%	20.9%
	Total	52.7%	63.0%	56.6%	53.5%	47.2%	64.1%	53.9%	54.6%
	<i>N</i>	313	189	502	306,692	437	287	724	390,877

Source: Student Learning Assessment Report, Eighth Edition, October 2009
LCCC IR Office, AMM, 09/13/2010

Table 1R2.4 MAPP Results for Critically Think

		2006-2007 Graduates	2007-2008 Graduates	2008-2009 Graduates	Nat'l Cohort
1 – Reading Proficiency	Level 1	69%	66%	67%	61%
	Level 2	40%	40%	36%	28%
	Level 3 (Critical Thinking)	9%	7%	3%	3%
2 – Mathematics Proficiency	Level 1	48%	53%	50%	46%
	Level 2	22%	26%	22%	20%
	Level 3	6%	7%	7%	4%
3 – Percentage Skills Sub-scores	Critical Thinking	112.54	111.81	111.30	110.2
	Reading	118.96	118.51	118.00	117.6
4 – Percentage Content Sub-scores	Humanities	115.65	115.45	114.98	113.9
	Social Sciences	114.16	113.20	113.25	112.7
	Natural Sciences	115.66	115.38	114.73	114.3
<i>N</i>		329	476	390	52,569

Source: Student Learning Assessment Report, Eighth Edition, October 2009
LCCC IR Office, AMM, 09/13/2010

At the time of this report, virtually all of the data for **Collaborate** stems from the 2007 and 2009 results of the CCSSE, and three locally-added questions to the MAPP for the Spring 2009 cohort. Overall, sophomores and graduates met the desired benchmarks with the exception of understanding people of other backgrounds for the CCSSE, and teamwork for the MAPP.

Table 1R2.5 CCSSE Results for Collaborate

Response	2007 CCSSE Results				2009 CCSSE Results				
	FR	SO	All LCCC	Nat'l Cohort	FR	SO	All LCCC C	Nat'l Cohort	
1 – 4f About how often have you worked with other students on projects during class?	often	33.2%	41.0%	36.1%	32.2%	36.5%	42.7%	39.0%	32.7%
	very often	13.3%	19.1%	15.5%	13.4%	12.2%	19.4%	15.1%	13.7%
	total	46.5%	60.1%	51.6%	45.8%	48.7%	62.1%	54.1%	46.4%
	<i>n</i>	316	188	504	306,692	436	288	724	395,534
2 – 4g About how often have you worked with classmates outside of class to prepare class assignments?	often	19.9%	32.8%	24.8%	15.0%	16.7%	25.8%	20.3%	15.8%
	very often	4.7%	9.0%	6.3%	5.8%	6.7%	15.0%	10.0%	6.1%
	total	24.7%	41.8%	31.1%	20.8%	23.4%	40.8%	30.3%	21.9%
	<i>n</i>	316	189	505	306,692	436	287	723	396,737
3 – 4i About how often have you participated in a community-based project as part of a regular class?	often	5.1%	9.1%	6.6%	4.3%	6.3%	14.3%	9.5%	4.7%
	very often	1.3%	2.7%	1.8%	1.9%	2.3%	7.7%	4.4%	2.0%
	total	6.3%	11.8%	8.4%	6.2%	8.6%	22.0%	13.9%	6.7%
	<i>n</i>	315	187	502	306,692	441	286	727	395,949
4 – 4s About how often have you had serious conversations with students of a different race or ethnicity than your own?	often	21.9%	22.5%	22.1%	23.6%	23.9%	24.7%	24.2%	23.8%
	very often	19.1%	25.7%	21.5%	18.1%	17.5%	19.2%	18.2%	18.9%
	total	41.1%	48.1%	43.7%	41.7%	41.4%	43.9%	42.4%	42.7%
	<i>n</i>	319	187	506	306,692	440	287	727	397,319
5 – 4t About how often have you had serious conversations with students who differ from you in terms of their religious beliefs, political opinions, or personal values?	often	25.2%	29.1%	26.6%	23.5%	27.3%	31.5%	28.9%	23.7%
	very often	24.2%	25.9%	24.9%	16.3%	18.9%	18.2%	18.6%	17.0%
	total	49.4%	55.0%	51.5%	39.8%	46.2%	49.7%	47.5%	40.7%
	<i>n</i>	318	189	507	306,692	440	286	726	396,902
6 – 12h How much has your experience at this college contributed to your development in working effectively with others?	quite a bit	39.5%	48.7%	42.9%	36.5%	35.8%	43.2%	38.8%	36.9%
	very much	16.6%	21.2%	18.3%	21.5%	18.7%	27.2%	22.1%	22.9%
	total	56.1%	69.8%	61.2%	58.0%	54.5%	70.4%	60.9%	59.8%
	<i>n</i>	314	189	503	306,692	438	287	725	391,385
7 – 12k How much has your experience at this college contributed to your development in understanding people of other racial and ethnic backgrounds?	quite a bit	28.7%	25.5%	27.5%	26.0%	21.1%	23.3%	22.0%	26.6%
	very much	9.9%	10.6%	10.2%	15.9%	6.7%	18.5%	11.3%	16.7%
	total	38.5%	36.2%	37.6%	41.9%	27.8%	41.8%	33.3%	43.3%
	<i>n</i>	314	188	502	306,692	436	287	723	390,638
8 – 12l How much has your experience at this college contributed to your development in developing a personal code of values and ethics?	quite a bit	28.0%	27.0%	27.6%	26.0%	22.7%	25.1%	23.6%	26.8%
	very much	9.9%	12.7%	10.9%	15.4%	10.3%	20.9%	14.5%	16.6%
	total	37.9%	39.7%	38.6%	41.4%	33.0%	46.0%	38.1%	43.4%
	<i>n</i>	314	189	504	306,692	437	287	724	390,751
9 – 12m How much has your experience at this college contributed to your development in contributing to the welfare of your community?	quite a bit	17.2%	22.9%	19.3%	17.6%	16.8%	25.2%	20.1%	18.5%
	very much	7.3%	6.9%	7.2%	8.9%	7.8%	13.3%	10.0%	9.7%
	total	24.5%	29.8%	26.5%	26.5%	24.6%	38.5%	30.1%	28.2%
	<i>n</i>	314	188	502	306,692	434	286	720	390,073

Source: Student Learning Assessment Report, Eighth Edition, October 2009
LCCC IR Office, AMM, 09/13/2010

Additional student development measures are presented in Tables 1R2.6 – 1R2.8 below.

Table 1R2.6 Fall-to-Fall Persistence of New Students

	LCCC	All Wyoming CCs
Fall 2004 to Fall 2005	50.0%	56.9%
Fall 2005 to Fall 2006	56.5%	54.8%
Fall 2006 to Fall 2007	52.3%	54.4%
Fall 2007 to Fall 2008	52.7%	55.0%
Fall 2008 to Fall 2009	55.2%	57.5%

Sources: Colleague Records, WCCC 2008-2009 Core Indicator Report

Because of the close proximity, LCCC generally experiences a higher percentage of pre-graduation transfers to the University of Wyoming than the other community colleges in the state.

Table 1R2.7 Percent of First-time, Full-time, Degree- or Certificate-Seeking Students Graduating or Transferring within Three Years

	Graduation Rate		Transfer Rate	
	LCCC	All Wyoming CCs	LCCC	All Wyoming CCs
Fall 2001 Cohort (through Summer 2004)	20.9%	29.4%	23.9%	21.7%
Fall 2002 Cohort (through Summer 2005)	13.9%	31.4%	24.9%	24.3%
Fall 2003 Cohort (through Summer 2006)	22.7%	31.6%	26.5%	20.1%
Fall 2004 Cohort (through Summer 2007)	17.1%	32.1%	43.2%	25.3%
Fall 2005 Cohort (through Summer 2008)	25.3%	31.5%	24.9%	24.3%
Fall 2006 Cohort (through Summer 2009)	17.3%	not available	28.4%	not available

Sources: IPEDS Data Center

Prepared by LCCC IR Office, AMM, 09/08/2010

Table 1R2.8 Course Retention and Student Success Rates

Semester	Retention Rate	Success Rate ¹
04/SU	87.9%	77.3%
04/FA	82.7%	68.7%
05/SP	83.7%	70.0%
05/SU	85.2%	74.0%
05/FA	82.9%	67.7%
06/SP	89.8%	74.5%
06/SU	91.2%	81.9%
06/FA	89.0%	71.6%
07/SP	87.8%	71.0%
07/SU	85.9%	73.0%
07/FA	83.0%	65.7%
08/SP	85.2%	69.0%
08/SU	86.6%	71.8%
08/FA	87.3%	68.7%
09/SP	84.5%	68.6%

¹Success rate = (number of students earning A, B, C, or S)/(number of students enrolled)

Source: Colleague Records

1R3

As noted in 1P18, program-level assessment of student learning has been inconsistently implemented. In 2010-2011, the SLAC, under the direction of LLT, will focus on working with faculty of those programs undergoing scheduled program review to systematically develop learning outcomes, identify and implement appropriate measures, and document their results.

1R4

As indicated in 1R2 above, LCCC experiences a higher percentage of pre-graduation transfers to UW than the other community colleges in the state. In Tables 1R4.1 and 1R4.2 below, it is evident that those students transferring fewer than 60 credit hours do not perform as well as those transferring at least 60 hours. It should be noted that the data received from UW indicates hours transferred rather than degrees completed. However, those students transferring at least 60 hours include those who have earned the required hours to earn an associate degree (64).

Table 1R4.1 UW Fall GPA Transferring at Least 60 Hours (the equivalent of having completed an associate's degree)

	LCCC		Wyoming CC Transfers		All Transfers		All UW Students	
	n	Average GPA	n	Average GPA	n	Average GPA	n	Average GPA
Fall 2006	54	2.773	272	2.934	405	2.894	3,644	3.023
Fall 2007	78	3.024	359	3.066	498	3.028	3,594	3.045
Fall 2008	78	2.870	389	2.925	554	2.900	3,492	3.063

Source: UW Office of Institutional Analysis

Table 1R4.2 UW Fall GPA Transferring Fewer Than 60 Hours

	LCCC		Wyoming CC Transfers		All Transfers		All UW Students	
	n	Average GPA	n	Average GPA	n	Average GPA	n	Average GPA
Fall 2006	77	2.769	253	2.844	543	2.797	5,824	2.814
Fall 2007	46	2.368	190	2.400	431	2.523	5,898	2.762
Fall 2008	53	2.337	194	2.319	430	2.411	6,111	2.770

Source: UW Office of Institutional Analysis

**Table 1R4.3 Graduates of Allied Health Programs
Success on Licensure/Certification Exams (First Attempt)**

	2004-05	2005-06	2006-07	2007-08	2008-09
Dental Hygiene					
National Board Dental Hygiene Examination ¹	73%	94%	93%	100%	94%
Nursing					
NCLEX-PN (Practical Nurse) ²	98%	98%	80%	98%	97%
NCLEX-RN (Registered Nurse) ²	83%	96%	100%	92%	93%
Radiography					
American Registry of Radiologic Technology ³	94%	89%	100%	100%	100%
Surgical Technology					
National Board for Surgical Technology and Surgical Assisting ⁴	n/a	n/a	67%	100%	100%

¹ As of 10/16/2009, results had been received for 17 of the 18 students who graduated from the Dental Hygiene program in Spring 2009. Sixteen passed the exam on the first attempt. The 17th student was successful on the second attempt. The 18th graduate attempted the exam in September, 2009, but that result had not been received by the time of this report.

² Results for 2008-09 do not include spring graduates of the Nursing programs.

³ At the time of this report, one graduate from the Radiography had not yet attempted the licensure exam.

⁴ Two of three students in the first Surgical Technology graduating class. The third student was later successful.

Source: Licensure Boards, Program Directors

1R5

Table 1R5.1 Percent of First-time, Full-time, Degree- or Certificate-Seeking Students Graduating or Transferring within Three Years

	Cohort Size		Graduation Rate		Transfer Rate	
	Passed Freshman Seminar	Did Not Pass Freshman Seminar ¹	Passed Freshman Seminar	Did Not Pass Freshman Seminar ¹	Passed Freshman Seminar	Did Not Pass Freshman Seminar ¹
Fall 2005 Cohort (through Summer 2008)	97	241	43.3%	12.0%	20.6%	22.4%
Fall 2006 Cohort (through Summer 2009)	136	265	25.7%	8.3%	46.3%	29.4%

¹ Including those who did not enroll in the Freshman Seminar.

Sources: IPEDS Data Center, Colleague Records

Table 1R5.2 Performance Results for the SAGE TRiO Program

PERFORMANCE OBJECTIVES	GOAL		ACTUAL	
	#	%	#	%
Total number of students served 2008-09	160	100%	160	100%
Eligibility criteria:				
a. Low income and first generation	a. 107	66%	a.115	72%
b. Low income only	b.	N/A	b. 14	9%
c. First generation only	c.	N/A	c. 42	26%
d. Disabled only	d.	N/A	d. 1	1%
e. Disabled and low income	e.	N/A	e. 2	1%
Project Performance Outcomes (total # served 2008-09):	N/A (determined by cohort year numbers; see below)		a. 107	67%
a. Persistence			b. 136	85%
b. Good Academic Standing			c. 34	21%
c. Graduation/Transfer				
Project Performance Outcomes (by cohort year)				
2006-07 Cohort: (3 rd of 3 year objective)	73 students			
a. Persistence into second year	a. 47	65%	a. 60	82%
b. Persistence of a. into third year	b. 24	50%	b. 41	87%
c. Good Academic Standing	c. 51	70%	c. 58	73%
d. Graduation (by 2008-2009)	d. 26	35%	d. 23	32%
e. Transfer (by 2009-2009)	e. 21	30%	e. 24	33%
2007-08 Cohort: (2 nd of 3 year objective)	54 students			
a. Persistence into second year	a. 35	65%	a. 43	80%
b. Persistence of a. into third year	b. 27	50%	b. 38	109%
c. Good Academic Standing	c. 38	70%	c. 37	69%
d. Graduation (by 2009-2010)	d. 19	35%	d. 6	10%
e. Transfer (by 2009-2010)	e. 16	30%	e. 13	24%
2008-09 Cohort: (1 st of 3 year objective)	70 students			
a. Persistence into second year	a. 46	65%	a. 68	97%
b. Persistence of a. into third year	b. 23	50%	b. N/A	
c. Good Academic Standing	c. 49	70%	c. 60	86%
d. Graduation (by 2010-2011)	d. 25	35%	d. 0	0%
e. Transfer (by 2010-2011)	e. 21	30%	e. 6	9%

Source: SAGE TRiO Annual Report, November 2009

Table 1R5.3 Student Success Center Tutoring Requests

	2006-2007	2007-2008	2008-2009	2009-2010
Tutoring Requests	684	855	1,681	2,078
Smarthinking.com Usage (hours)	52	127	163	375

Source: System for Student Success Annual Report, July 2010

Table 1R5.4 Use of Library and Library Services

Use of Collection	2007-2008	2008-2009	2009-2010
Total Item Circulation	14,015	13,039	13,648
Serial Database Searches	169,986	318,770	433,883
F-Text Articles Retrieved	140,866	238,171	470,879
Library Website Visits	143,096	150,031	NA
Use of Services	2007-2008	2008-2009	2009-2010
Reference Questions	4,123	4,319	4,728
Library Gate Counts – Fall Semester	4,417	28,869*	NA
Library Gate Counts – Spring Semester	5,147	31,131*	31,176
Library Cards Issued	952	758	870
Interlibrary Loan – Lending	988	1,460	1,454
Interlibrary Loan – Borrowing	470	706	484
Library Instruction	2007-2008	2008-2009	2009-2010
Library Instruction/Classroom Sessions	90	99	112
Total Number Students Attending	945	1,327	2,229

*Library changed the method of collecting gate count data. The 2007-2008 count was taken during a designated time period (3 weeks) in the middle of each semester. A counter was borrowed every semester from Wyoming State Library. The library has since purchased and installed a permanent gate counter. Weekly readings are logged and maintained. Problems with staff recordings and the installation of a new counter provided inaccurate readings for fall 2009.

Source: *Ludden Library*

See 6R2 for data on the library collection.

1R6

See 1R2 and 1R4 above.

Improvements

1I1

One of LCCC's first action projects was to develop recommendations to improve the advising process. This team developed a model for creating an Advising Center. These recommendations are being implemented as resources permit. Another action project is to review and modify, as necessary, course prerequisites. Part of this team's work, ongoing at the time of this writing, is to develop criteria to assist faculty in establishing prerequisites. (See 1P5)

As described above (1P8), the College has piloted an open-entry/open-exit developmental writing course to assist students remediate their skills more quickly. Additionally, LCCC is investigating models to improve student success in developmental reading and is pursuing a grant to redesign the developmental math sequence.

Finally, a recent improvement is the development and implementation of LCCC's process to assess student learning in the four core abilities. This process, including a data collection cycle, was developed by faculty teams, the SLAC, and division deans over a three year period. Faculty-developed rubrics have been phased in, with the final rubrics to be piloted in fall 2010.

1I2

Category One: Helping Students Learn

LCCC is developing a culture of data-enhanced decision making and continuous improvement. Several action projects completed or in progress, have contributed to efforts in this area. Initial action project selection (Advising) was identified as one of the Provocative Propositions at the beginning of LCCC's AQIP efforts (February 2007). As various stages of the action projects are completed, campus input is solicited and used to refine the focus of the action project or identify the next action project. The College is currently in the third phase of the prerequisite review project. This dynamic process supports a responsive continuous improvement effort. An example of LCCC's developing culture of continuous improvement is that the LLT has initiated efforts to address the pre-graduation transfer issues identified in 1R2 and 1R4 above.

Additionally, as discussed in 1P1 above, SLAC has been a standing operational committee since the early 1990s. This cross-functional team is responsible for developing, maintaining, evaluating, and modifying major elements of the student learning assessment process. SLAC has developed an annually updated "Where are we going?" plan to help the select specific processes to improve. The most recent steps of this plan that have been implemented include the development of common rubrics for assessing student learning in the core abilities and a rotation cycle for assessment data collection.