Meeting Agenda  
Wednesday, October 1, 2014  3:00 – 5:00 p.m.  Virginia Dare Room, Alumni House

Call to Order and Introductory Remarks  
Spoma Jovanovic, Chair of the Faculty Senate

Approval of Minutes  
Jim Carmichael, Secretary of the Faculty Senate: April 2, 2014 (Enc. A) & September 3, 2014 (Enc. B)

Remarks and Q/A: Update on Salary Administration and Budget Planning, 2015-2017  
Linda Brady, Chancellor  
Dana Dunn, Provost

Presentations  
Charlie Callicutt, Guilford County Board of Elections  
Vote Voting Rights Information for Faculty (Enc. C): NC Law Changes and Student Voting Guide (Enc. D)

Rod Wyatt, Chancellor’s Advisory Committee on Equity, Diversity, and Inclusion  
Committee Goals and Actions

Ben Ramsey & Bryan Terry  
Undergraduate Studies—to University Teaching & Learning Commons and Enrollment Management

Roy Schwartzman  
Report on UNC System General Education (Enc. E)  
Assessing Critical Thinking in Higher Education: Current State and Directions  
For Next-Generation Assessment (Enc. F)  
Principles of Evidence-Centered Assessment Design (Enc. G)

Announcements

Committee Briefs  
Beth Bernhardt, Scholarly Communications, 10/23/14, “Solving the Textbook Cost Crisis” (Enc. H)  
Faculty Assembly, 2014-2015 Schedule (Enc. I)  
and 9/5/14 Meeting Notes (Enc. J)

Deb Bell, Budget Committee, Budget 101 Session Recap and 10/24/14, “UNCG’s Revenue and Spending” (Enc. K)

Resolutions  
Susan Shelmerdine, Chair of Academic Policies and Regulations Committee  
Student Success Policy: #FS-10012014:01 (Enc. L)

Senate Elections

Old/New Business

November Agenda, Priority Areas for 2014-2015

Adjourn

UPCOMING Faculty Senate Forum: Strategic Planning Visioning  
Wednesday, October 15, 2014, 3:00 p.m., Virginia Dare Room

NEXT Faculty Senate Meeting: 11/5/14 (Agenda items due Monday, 10/20/14 at 5:00 p.m.)  
Refreshments are available at 2:30 p.m. for Senators to meet and greet faculty colleagues. NOTE: We encourage Senators, non-voting faculty and visitors to speak upon being recognized by the Senate Chair.
Minutes of the Faculty Senate Meeting  
April 2, 2014  
3:00, Virginia Dare Room  
Patti Sink, Chair  

*Draft Pending Approval at the October 1, 2014 Faculty Senate Meeting*

<table>
<thead>
<tr>
<th>Agenda Item &amp; Presenter</th>
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</table>
| Welcome, Approval of Senate Meeting  
*Senate Chair* Patricia Sink | *Patti Sink, Senate Chair* opened the meeting at 3:00. After approval of the agenda, Faculty Senate meeting minutes were approved unanimously for meetings on February 5, February 20, and March 5, 2014. | Minutes accepted |
| Budget Reduction Plan: Overview & Principles of University Wide Allocation of Cuts  
*Chancellor Linda Brady* | *Chancellor Brady* presented a PowerPoint covering the principles guiding her revisions to the original proposed plan (see attachment). Campus feedback from faculty and others led to reducing cuts originally assigned to Academic Affairs by $1 million. The goal was to moderate the impact on instruction. Athletics is reducing staff, administrators and operating budgets to support scholarship. UNCG will proceed with the new Rec Center and the existing one will be repurposed for academic uses. | |
| Remarks on Potential Impact of Structured Cuts to Academic Affairs  
*Provost Dave Perrin* | *Provost Perrin* presented his strategies for budget reductions: Undergraduate Studies and Student Affairs, 15%; ORED, 7.8%; Enrollment Management and Institutional Research, 5.3%; and Academic Units, 7.5% each. The guiding principle was to protect permanent tenured and tenure track, plus multiple year contract faculty along with fall instruction. We may see a loss of 600+ course sections and 14,300 seats, resulting in larger section sizes and fewer small enrollment courses. (See attached Power Point for details).  
*Senators* expressed a desire for units to make public their consultations and get feedback; to plan for the long-term; work harder to get adequate data; consider salary cuts to administrators, instead of raises; and consider how to prevent more budget cuts in the future. *Chancellor Brady* responded that UNCG is beholden to legislative decisions next year; initial reports are that income tax payments are down in response to tax cuts. UNCG’s ability to influence is around enrollment and we do have a plan now. | |
| Study of Department Chairs/Heads Policy and Practice  
*Bruce Kirchoff, Chair, Faculty Government Comm.* | *Bruce Kirchoff* explained that this project was put on hold and will be taken up by Faculty Senate next year. | |
| Resolution #FS-04022014-01  
*To Express Senate Opposition to Recommendations of UNC’s Post-Tenure Review Work Group*  
*Bruce Kirchoff, Chair, Faculty Government Comm.*;  
*John Lepri* explained that the end of tenure for public school teachers is part of what is addressed in this effort to oppose the UNC’s working group’s revisions on post-tenure review. The revisions are part of the Board of Governors package to ruin permanent employment. Their work started without any faculty involvement and originally was to be “at will,” instead of every five years.  
This resolution supports Faculty Assembly’s opposition.  
At least four other faculty senates have similar resolutions on the table. | Passed unanimously |
WHEREAS, UNC General Administration’s Post-Tenure Review Working Group has asked for feedback on their recently completed proposals for revisions of Guidelines on Performance Review of Tenured Faculty (Attachment)

WHEREAS, these revision include, among other provisions, proposals that would increase faculty and administrative workloads at a time when the system schools are barely able complete their core missions, and

WHEREAS, the problematic proposals include
The requirement that the campus must bring their policies into compliance with the new Guidelines by October 1, 2014—a deadline that precludes meaningful shared governance review of this issue;
The added workload of producing and tracking directional goals on a five-year basis, a plan that seems to provide no real benefit and subverts the intention of post-tenure review as a cumulative review of past performance;
The requirement that the deans provide evaluative reviews of every post-tenure review, a requirement will add to the workload of the deans, especially in units with large numbers of faculty members;
The requirements for training of all post-tenure review evaluators, including administrators; a requirement that places an undue financial and regulatory burden on the campuses, and lacks clear justification;
The requirement for the use of three assessment categories (exceeds expectations, meets expectations, does not meet expectations) with the intention of forcing the campuses to reward exemplary performance, but without the provision of the resources with which to make these rewards; therefore,

BE IT RESOLVED that the UNCG Faculty Senate strongly opposes the above listed changes, and asks President Ross to send the report back to committee for revision.

No motion necessary.
The Chair called for a vote.
Passed unanimously.

Resolution #FS-04022014-02
To Revise the Withdrawal from the University Policy
Susan Shelmerdine, Chair, Academic Policies and Regulations Comm.

WHEREAS, the Board of Governors’ Regulations 400.1.5[R] on “Fostering Student Success” necessitated the creation of a new Course Withdrawal Policy, with a 16 s.h. limit for course withdrawals; and,
WHEREAS, the current Policy on Withdrawal from the University is not in alignment with the new Course Withdrawal Policy; and,
WHEREAS, it is in the students’ interests for the 16 s.h. limit not to include withdrawn courses from a semester in which the student withdraws from the University; therefore,

Passed Unanimously
BE IT RESOLVED, that the Policy on Withdrawal from the University statement in the Undergraduate Bulletin be replaced with the following: Undergraduate students who find that they must withdraw from the University can do so by withdrawing from all courses through the UNCGenie website. Undergraduates who withdraw from all courses are considered to be withdrawn from the University and must seek reactivation or readmission through Undergraduate Admissions to return to school in subsequent terms. Students withdrawing from the University within the first 8 weeks of the term will be indicated on the transcript with a grade of “WT”. All “WT” courses count as attempted hours and are subject to Academic Standing, financial aid, and Satisfactory Academic Progress rules and calculations; they do not count in GPA calculation or tuition surcharge calculations.
If a student withdraws from the University after the 8 week deadline, WF grades will be recorded. WF grades are calculated in the student’s GPA as F (failing) grades.

Passed Unanimously

| Resolution #FS-04022014-03: To Permit Priority Registration for Active Duty Service Members and Students, Released from Active Duty for a Specific Amount of Time who Attend College through a Military Degree Completion Program, Susan Shelmerdine, Chair, Academic Policies and Regulations Comm. | Susan Shelmerdine stated that priority registration for active duty students was good for enrollment and is consistent with our reputation as a military-friendly campus. This year, 39 students are eligible. 230 student athletes also get priority registration, as do honors students for honors sections and students with disabilities. WHEREAS, the Board of Governors’ Regulations 700.7.1 on “the Admission of Active Duty Services Members and Veterans,” recommends that all campuses provide priority enrollments to “active duty students using Armed Forces Tuition Assistance (TA) as well as those students who are released from active duty for a specific amount of time to attend college through a military degree completion program,” and WHEREAS, scheduling challenges and limitations often occur for these students; therefore, BE IT RESOLVED, that Active Duty Service Members using Armed Forces Tuition Assistance and students who are released from active duty for a specific amount of time to attend college through a military degree completion program are permitted to register ahead of the general undergraduate population within their class. Vote called. Passed. | Passed |
| Resolution #FS-04022014-04: To Permit Priority Registration for Students with Declared Online Wade Maki explained that several hundred active students can’t get into their courses because on-campus students register for these classes leaving few if any seats open. This resolution provides for online students to register in advance. He indicated that the committee could add language “for classes in courses which also have on campus sections.” | Wade Maki explained that several hundred active students can’t get into their courses because on-campus students register for these classes leaving few if any seats open. This resolution provides for online students to register in advance. He indicated that the committee could add language “for classes in courses which also have on campus sections.” | Passed |
WHEREAS, students in online degree programs must enroll in online course sections to graduate; and

WHEREAS, students who complete their degree programs on-campus often choose to complete courses online, leaving minimal, if any, seats for students pursuing online degree programs; and

WHEREAS, there are typically fewer online course seats than on campus course seats; and

WHEREAS, many online degree-seeking students cannot graduate on time because required online courses and online-course sections are filled by on-campus degree-seeking students; therefore,

BE IT RESOLVED that students who have declared online majors are permitted to register ahead of the general undergraduate population for their class.

Neufeld moved that the amended resolution be adopted. Carmichael seconded. Though some reservations were expressed, the amended resolution passed.

Report from the Budget Committee
Wayne Journell, Chair, Budget Committee

Wayne Journell said in response to Faculty Senate’s interest to be informed of budget issues, including the costs of replacing faculty who leave due to morale and salary compensation. The budget committee will prepare an annual report to the Faculty Senate with a pilot to be launched in summer/fall.

Future of the Faculty Teaching and Learning Commons
Steve Roberson, Dean, Undergraduate Studies

Steve Roberson issued an invitation to all faculty to provide consultation to the FTLC. Go to the web page to offer comments and suggestions. We are looking for additional faculty fellows.

Faculty Senate Elections
Patti Sink, Chair

Patti Sink presented the nominees: Anita Tesh, Chair-Elect (two year term); Jim Carmichael (Secretary). Ballots counted by Mary Lea Wolfe with both candidates voted into office.

General Announcements
Patti Sink, Chair

Printing Forum, April 3, 10AM in Kirkland; April 10, 1PM Stone Building 186. Final (General) Faculty Meeting, April 23, EUC; Tom Ross will be attending. Thanks to all for a wonderful year.

Areas of Focus for 2014-2015 Academic Year
Spoma Jovanovic, Senate Chair-Elect

The academic calendar was passed with additional meetings in August, January and May. Jovanovic will focus on communication next year; emphasize courage, respect, and interdependence, including accepting what we might consider the fringes of thought to embrace expression in all its many forms.

Adjournment

Patti Sink moved and Wade Maki seconded that the meeting be adjourned.
Post-Tenure Review Working Group
Recommendations

The University of North Carolina General Administration

April 2014
This report summarizes the work and recommendations of the post-tenure review working group. Membership of the working group consisted of the following, Mr. GA Sywassink, Chair of the working group and Vice Chair of the Board of Governors Committee on Personnel and Tenure; Mr. Therence Pickett, member of the Board of Governors Committee on Personnel and Tenure; Chancellor David Belcher of Western Carolina University; Chancellor Harold Martin of North Carolina A&T State University; Dr. Marilyn Sheerer, Provost and Vice Chancellor for Academic Affairs at East Carolina University; Dr. David Barlow, Dean of the College of Arts and Sciences at Fayetteville State University; and Dr. Catherine Rigsby, Chair of the Faculty Assembly. Dr. Suzanne Ortega, Senior Vice President of Academic Affairs acted as staff to the committee.

The Committee was charged with examining current system and campus post-tenure review policies and practices to identify ways in which they can be strengthened with an emphasis on consistency, rigor and accountability. The working group was tasked with submitting recommendations to the President on the inclusion of practices to strengthen the guidelines governing post-tenure review and recommend any changes to UNC Policy.

The Committee conducted a series of in-person and teleconference meetings between January 24, 2014 and March 11, 2014. During these meetings and subsequent discussion the working group reviewed 400.3.3.1[G] and identified several changes or clarifications which would strengthen the post-tenure review process while also increasing the effectiveness of performance evaluations. These include, greater alignment between annual performance reviews and post-tenure review, clarification of the process of a second level of review beyond the department chair or unit head, providing training opportunities for those involved in the post-tenure review evaluation process, auditing of compliance with training and process regulations, and the creation of three assessment categories.

Appendix A is a red-line version of the policy showing the suggested edits.

**Greater Alignment Between Annual Performance Reviews and Post-Tenure Review**

The current guidelines direct campuses to ensure their policies show a relationship between the annual performance review of tenured faculty and the post-tenure review and specifies that annual performance reviews are not substitutes for the “comprehensive, periodic, cumulative review.” To better align annual performance reviews and post-tenure review, the working group recommends that the post-tenure review be based on a set of directional goals proposed by the faculty member at the beginning of the review cycle. These directional goals should act as a guide for the professional growth of the faculty member over the coming five-year period. Milestones created in these goals will act as the basis for annual reviews. Directional goals should be approved by the department chair. The working group felt it was important to recognize that changes in circumstances could necessitate changes in these directional goals and therefore included language in the proposed guideline edits which allows for annual modifications as deemed appropriate.

**Clarification of the Process of a Second Level Review**

The current guidelines currently require that post-tenure review outcomes be reviewed at one or more higher administrative levels. To increase consistency throughout the system, the working
group proposes that the Deans must provide an evaluative review in addition to the review conducted by the peer review committee and the department chair. The Provost will be required to certify that all aspects of the post-tenure review process for that year are in compliance with policy and guidelines. Department chairs/unit heads are often in difficult positions when it comes to evaluating faculty within their departments. They are organizationally situated immediately beside faculty colleagues and often return to faculty ranks to later be evaluated by someone whom they once had the responsibility to evaluate. The recommended change not only provides greater consistency across the system regarding who is involved in the post-tenure review process but also provides an opportunity to the review process to be more meaningful for the faculty member undergoing the review and builds in additional support for department chairs and unit heads. Under the proposed revision, faculty will be receiving feedback from a peer review committee but also department chairs/unit heads and the Dean.

**Providing Training Opportunities**

As the working group discussed the goals of the post-tenure review process as noted in the policy, to support and encourage excellence among tenured faculty by recognizing and rewarding exemplary faculty performance, providing a clear plan and timetable for improvement of performance of faculty found deficient, and providing for the imposition of appropriate sanctions. The working group feels strongly that post-tenure review should be a positive and useful process that both recognizes strong performance and provides constructive criticism to strengthen the performance and provide professional growth of the faculty. The current guidelines neglect to include a mechanism by which evaluators are prepared to provide such feedback. The working group recommends that institutions be provided ongoing support and training for all post-tenure review evaluators, including peer committee members, department chairs/unit heads, and deans. UNC General Administration will be responsible for preparing digital training modules for campus use. The modules will focus on the essential elements of a useful and thoughtful review: how to prepare, conduct and manage a meaningful review process and how to provide constructive criticism in a positive manner. The Provost will be charged with certifying that training is being conducted.

**Auditing Compliance**

One of the pieces of the charge to the working group was to identify ways in which the post-tenure review process could be strengthened by identifying areas where greater consistency could be achieved across the system. One such area is compliance reporting. The current guidelines offer an unstructured form of compliance reporting and therefore is conducted differently across the system. The working group recommends implementing a compliance audit to ensure that training and processes are being conducted according to policy. UNC General Administration will be responsible for conducting training and process audits of all campuses during the 2015-2016 fiscal year. In subsequent years, process audits will be conducted of all campuses on a three-year rotating cycle unless irregularities are identified.
Assessment Categories

The current policy notes recognition and reward of exemplary faculty performance as one of the three purpose of post-tenure review. The working group therefore recommends that each campus utilize three levels of assessment for their faculty, meets expectations, exceeds expectations, and does not meet expectations. These three categories will not only provide consistency across the system in terms of evaluation metrics, but also satisfies one of the main goals of the post-tenure review policy, to recognize exemplary faculty performance. Without the three assessment categories, faculty with exemplary performance are not identified and therefore cannot be recognized. The working group recognizes that absent funding, recognition of exemplary performance can be challenging but felt there were other avenues of recognition outside of salary increases. Examples of these alternatives include, course-release time, professional development funding, and public recognition.

Conclusion

In summary, the post-tenure review working group sought to identify areas in which the post-tenure review policy and guidelines could be strengthened. Specifically, the working group wished to identify areas where greater consistency could be achieved in implementing policy across the system. These recommendations seek to achieve this outcome by creating three assessment categories and including the Dean as an evaluative reviewer within the post-tenure review process. An additional outcome of this review was to increase the rigor and accountability of the process. Recommendations for the inclusion of an auditing process, including the Dean as an evaluative reviewer, and providing training opportunities all contribute to strengthening the rigor of the post-tenure review process. Additionally, the post-tenure review working group felt strongly that the post-tenure review process should be positive in nature and allow for recognition of exemplary performance as well as a constructive evaluation process by which faculty could continue to grow professionally. Providing training for all individuals involved in the post-tenure review process assists reviewers in strengthening their evaluation skills. Training also increases the probability that faculty will receive the types of feedback that is most helpful and valuable to their individual growth and contribution to the institution.

These recommendations have been shared with faculty assembly and are currently being reviewed by Chancellors and their executive leadership. Following receipt of their feedback, a final version of these recommendations will be provided to President Ross for approval.
Minutes of the Faculty Senate Meeting
September 3, 2014
3:00 p.m., Virginia Dare Room
Spoma Jovanovic, Faculty Senate Chair

Draft Pending Approval at the October 1, 2014 Faculty Senate Meeting

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<td>Welcome, Approve Agenda &amp; Remarks: Senate Chair Spoma Jovanovic</td>
<td>The Chair called the meeting to order at 3:00 p.m. and asked that April 2014 minutes wait for approval until the October meeting. Guests were recognized: Sean Farrell of the Staff Senate, Simone Stevens of the Student Government Association, Elizabeth Warren of the Graduate Student Association, and Board of Trustees Chair Susan Saffron. The theme for the Faculty Senate 2014-2015 year is higher education’s relevance and role in a democracy to promote the public good. The text of the Chair’s remarks are here: Robert Self, a history professor and author who grew up in North Carolina and now teaches at Brown University says, “Though our individual fates differ, we have a collective destiny, too.” It is with that thought that I hope we can move forward this year. We are individuals with distinct views and contributions to make and collectively, we are connected. Together, we will shape what is yet to come. The challenges to the value of higher education in society today are omnipresent. Faculty members are required to defend what previously was an assumed public good. Our response cannot be one of silence or compliance if we want to reclaim the relevance of higher education in society today. We can and should speak out as public intellectuals—through a discourse of critique and importantly, with a discourse of possibility, too—to ensure that this place matters... to us, to our students, to the community, and to the public good. At UNCG, we must be aware of the political climate and cultural conditions that surround us. Market deregulation, the downsizing of tenured faculty, the inequity of non-tenured faculty compensation, the instrumentalization of education, and the rise of authoritarian practices within our state exist. And so, we have a choice: do nothing or step into the political domain to assert where and how higher education is relevant today. We also need to teach our students how to be active citizens equipped with the history, understanding, and critical reasoning necessary to use their voices to craft a society of their own, not merely accept the work of our Southern legislators who NY Times columnist and author George Packer described as “a captive tool of corporate ideology.” If we are distressed by the impact of deep budget cuts and the corporate takeover of education and government institutions, then we need to do what perhaps previously we did not have to do. We need to reclaim the value and honor of education as intimately connected to democracy. To do anything less is to stay mired in the destructive influence of hopelessness. Over 36% of the Millennials live in the South, so what we do here matters all that much more. Our students are confronted with problems of epic proportion. In our state, we have allowed policies and practices to exist that result in 1 in 4 children living in poverty, and we know that there is only a fifty-fifty chance of them ever getting out of that impoverished condition. When some of our students want to believe racism no longer exists, we have to remind them in our teaching practices that it does exist, and that it is built, unfortunately into the fabric of our state’s policies where of those children living in...</td>
<td>Agenda Approved</td>
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poverty, 74% are Black or Hispanic.

Our challenges are great, but our opportunities are as well. If we can effectively teach our students how to engage with the world, cognizant of the political landscape, economic hardships, and cultural fractures that leave too many with too little, then we can tip the scales of justice toward equality not inequity and toward compassion for, rather than fear from one another.

Education has an enormous power to influence and shape our knowledge, but even more important than that, it can shape our actions based on knowledge not fear. We can no longer be what Henry Giroux calls “gated intellectuals” walled off from the political, social, and ethical fissures in our community. Our job, as I see it, is to critique anti-democratic actions, imagine possibilities for a future that invests in the common good, and prepare ourselves and our students to participate in meaningful dialogue, with critical reason, in order to assume the social responsibility inherent in democratic life.

The work we do here and now in this body, Faculty Senate, and in our committees, in our classrooms, in the community, and all over campus, matters.

**Remarks:**

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<th>Chancellor Linda Brady</th>
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<td>This has been a difficult year for UNCG, but we are starting to see some positive signs. There is some good news surrounding enrollment, thanks to Bryan Terry and his team. We have new leadership with Provost Dana Dunn and Charlie Maimone, Vice-Chancellor of Business Affairs. I am firmly committed to improving communication, on campus and off. I am appreciative of Faculty Senate Chair Spoma Jovanovic and her leadership. This week, our Board of Trustees’ lunch will include attendance by 37 faculty members for us all to get to know and understand more of campus affairs. On Friday, three faculty members with share their research with the Board of Trustees and explain how it connects to UNCG’s mission: Victoria Jacobs of Teacher Education and Higher Education; Susan Letvak from the School of Nursing; and Nicholas Oberlies of the Department of Chemistry.</td>
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As we begin our strategic plan visioning, we can anticipate some fierce conversations entered into with respect around, for example, how we reconcile teaching versus research, and access versus academic quality. We need to ask, “What would we do if we could do anything and not fail?”

**Remarks, Provost Dana Dunn**

The Provost expressed her appreciation of the Chair’s remarks on the relevance of higher education. She spoke briefly of her first four weeks on campus, and especially her pleasure in meeting students, faculty members, and staff where she witnessed pockets of excellence and commitment at every turn.

Provost Dunn introduced a new Academic Learning Spaces Committee with Faculty Senate representation from Lynda Kellam who chairs the Faculty Teaching and Learning Committee.

The Provost outlined, briefly, Strategic Plan Visioning Process, with the first part dedicated to “Planning to Plan” during the fall months. For this, there will be an October Faculty Forum and discussions at every unit, as well as with alumni, students, and the staff senate. By December, we should have information to share with the yet un-constituted Strategic Planning Committee.

Finally, the Provost urged the Senate to build a working relationship based on trust. She offered that while at the University of Texas at Arlington, the Faculty Senate there commended her for her strong communication and rapport with faculty. When asked about her techniques to garner trust, the Provost answered that she believes it is vital to listen, engage in respectful dialogue, work collectively on issues, and then explain the reasons for decisions made.

**Annual Reports:**

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<td>Passed by Faculty Senate Patti Sink, Past Faculty Senate Chair; Jim Carmichael, Faculty Senate</td>
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Sink briefly recapped the Faculty Senate Year-End Report for 2013-2014 noting actions items approved by the Faculty Senate and General Faculty; Carmichael referred to 2013-2014 Faculty Senate Committee Reports and thanked the committee chairs for submitting them in a timely manner; Dale highlighted in the 2013-2014 Undergraduate Curriculum Committee Report the challenges involved in approving courses designed and proposed by the Division of Continual Learning and the new work involved with reviewing five accelerated degree programs this year; Klase’s 2013-2014 Graduate Studies Committee Report included discussion of the new requirements for dissertation committees to receive approval from IRB before dissertation topics can be approved as well as a redefinition of graduate full time status and online doctoral programs.
Kirchoff and Jovanovic explained the unusual circumstances leading to this resolution to amend the Constitution. The Faculty Senate voted for Anita Tesh to be Chair-Elect in a spring 2014 election. However, since the Constitution required that the Chair-Elect be elected from the Senate, a mistake, inadvertently, had been made since Tesh was not then a Senator. The Elections Committee will arrange for a new election for Chair-Elect in December 2014.

The Resolution called for two main changes: to make it possible for Chair, Chair-Elect, and Secretary candidates to come from the General Faculty; and to have the parliamentarian’s service dismissed by the Chair or a vote of the Faculty Senate. Senate members discussed the merits of experience of Senate membership as a requirement for leadership but also recognized that allowing elected leadership to come from anyone in the General Faculty was an option the Elections Committee should have. Senators also deliberated on the role and oversight desired for the parliamentarian. The resolution clarifies that the parliamentarian is not an officer of the Senate.

WHEREAS, the current Constitution of the Faculty only allows members of the Faculty Senate to serve as officers of the Senate, and

WHEREAS, it has become increasingly difficult to find senators willing to serve as officers, therefore

BE IT RESOLVED that SECTION 1. Composition of the Faculty Senate, SECTION 4. Officers of the Faculty Senate, and SECTION 5. Terms of Senators of ARTICE II: THE FACUTY SENATE shall be revised as indicated on the attached copy of the Constitution with Track Changes, to address the following issues (changes from the current constitution in bold), said changes having been approved by the Faculty Senate at the September 3, 2014 meeting.

The chair, chair-elect, and secretary will be elected by the Faculty Senate from a pool of candidates that includes anyone on the General Faculty.

The Parliamentarian can be removed by the chair, or by a vote of the senate.

The chair-elect and chair, if they were senators, will resign their senate seats once they begin their service as officers and thus will need to be replaced by their electoral divisions. This also means the chair-elect will not vote and that the chair votes only in case of a tie per Robert's Rules.

BE IT FURTHER RESOLVED that the wording on line 506 be changed to make it consistent with that used in the rest of the constitution: “5 working days” instead of “7 calendar days.”

The resolution, with minor amendments carried with two opposed and two abstentions. Because the resolution involves changes to the Constitution, it will be put forth to the next General Faculty meeting for a vote.

The Faculty Workload Policy, revised to comport with General Administration policy was presented to the Faculty Senate for information, not for a vote. No major changes were made, and the Dean’s Council has reviewed the policy.

The Chair reviewed a preliminary list of priorities for Faculty Senate attention this year to include:
1. Freedom of expression;
2. Shared governance;
3. Education in budgeting and planning;
4. Strategic planning
5. Voting rights and registration
6. An ad hoc committee on inclusion, equity, and diversity
7. Faculty Handbook
8. Faculty Senate Scholarship
9. Non-Tenure Track Faculty priority needs;
10. Faculty “boot or re-boot camps.”

The Chair invited Senators to attend Faculty Senate agenda planning meetings and sent around a sign-up sheet.

Stoel Burrows asked Senators to consider serving on the University Promotion and Tenure and Committee.

The last item on the agenda, Undergraduate Studies and Enrollment Management restricting, was tabled.

**Small group discussions**

Additional priority areas for work by Faculty Senators include:

1. More faculty and student input in university decisions and more listening from administration on its initiatives
2. Salary Compression/Equity and pay raises that are overdue.
3. Open conversation between faculty and administration about the assumed appropriateness/value of on-line courses and on-line courses combined with class teaching.
4. Campus-wide deliberations on technological initiatives that are driving teaching initiatives.
5. Consider revising the policy for maintaining “good academic standing.” Current policy seems excessively punitive.
6. Transparency and regular reports to Senate about the size of the administration compared to faculty, with comparison to peer institutions.
7. Morale/faculty sense of community: how can we rebuild it?
8. Summer school planning/projection and budgeting improvement. (Can summer teaching be part of a faculty member’s annual teaching load, not on top of load?)
9. Improving our relationship and communication with the Legislature through education for faculty members, staff, and students.
10. Consider how to best use Faculty Assembly to address issues to the Board of Governors, General Administration, and Legislature.

**GEC Committee’s Resolution #FS-09032014-02 To Clarify the Procedure for Granting Writing Intensive and Speaking Intensive Markers**

Jonathan Zarecki, GEC Committee

GEC needed to close a loophole regarding Speaking Intensive/Writing Intensive (SI/WI) courses. The current documents said that SI/WI requirements were “supervised” by GEC; however, with the dissolving of CAC, GEC needed to be able to approve SI/WI markers.

**WHEREAS**, the General Education Council is charged with ongoing review and maintenance of the General Education goals, assessment of student achievement of these goals, oversight of the General Education requirements, and approval of requests for GEC markers and designations, and

**WHEREAS**, the Writing Intensive and Speaking Intensive Committees are supervised by the General Education Council, and

**WHEREAS**, the definition ‘supervised’ has never been codified in writing, and

**WHEREAS**, there is an urgent need to clarify the working relationship between the Writing Intensive
and Speaking Intensive Committees and the General Education Council,

**BE IT RESOLVED**, that the charge of the General Education Council be amended to the following:

The General Education Council is charged with the ongoing review and maintenance of the General Education goals, assessment of student achievement of those goals, oversight of the General Education requirements, and the approval of requests for GEC categories and markers. The execution of these charges may include the establishment of ad hoc committees or the involvement of faculty consultants, as needed. The Writing Intensive and Speaking Intensive Committees are appointed by the Council, and are charged by the Council with the review and approval of all proposals for Writing Intensive and Speaking Intensive markers. The committees will report approved proposals to the Council and the Registrar for administrative disposition.

The resolution carried, unanimously.

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**GEC Committee’s Resolution #FS-09032014-03 To Revise the Student Learning Outcomes for the GMT General Education Category**

Jonathan Zarecki, GEC Committee Chair

Zarecki detailed a resolution to recertify the GMT (Mathematics) marker.

WHEREAS, the General Education Council is charged with ongoing review and maintenance of the General Education goals, assessment of student achievement of these goals, oversight of the General Education requirements, and the approval of requests for GEC markers and designations, and

WHEREAS, the review of UNCG’s General Education program and its courses is a continuous process that requires faculty guidance and participation, and

WHEREAS, regular recertification of General Education courses is necessary in order to ensure that GEC courses continue to meet the learning outcomes for which they were approved, and

WHEREAS, a committee of faculty who teach Mathematics (GMT) courses that was convened by the General Education Council has recommended a revision of the Mathematics (GMT) student learning outcomes in advance of the next scheduled recertification of Mathematics (GMT) courses, therefore

**BE IT RESOLVED**, that the student learning outcomes for General Education courses carrying the Mathematics (GMT) category designation be amended to the following:

Mathematics (GMT)

1. Reason in mathematical systems beyond data manipulation.

2. Formulate and use mathematical models to solve real-world problems.

3. Communicate mathematical solutions clearly and effectively.

Resolution passed unanimously.

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Resolution Approved
LeFevre presented the results of the spring 2014 faculty morale survey that had a 45% return rate from 485 faculty. 85% reported there was a definite or serious morale problem on campus. Sources of positive morale were identified as collegiality among faculty, gratitude from teaching, and gratitude from research. Sources of negative morale included salary compression/equity, decisions about budget allocation, lack of shared vision, and an administration that does not value transparency. The Office of Institutional Research reviewed the results, with qualitative responses categorized.

When the floor was open to comments and questions, Senators expressed concern over lack of clarity in the Likert scale (was 1 high or 5 high?), the desire to see open-ended responses shared with faculty, and the survey’s lack of adequate representation from assistant and non-tenure track faculty. LeFevre stated that she has all of the raw data, but that the committee felt they could not share it due to concerns for anonymity. Suggestions from the floor included de-identifying the data, a standard research practice. Some Senators said that repeating parts of the survey or running focus groups could be next steps, but other Senators feared that activity would be repetitive and/or not useful.

The meeting adjourned at 5:15 p.m.
SUMMARY OF NC’s NEW VOTING LAW

In the last 72 hours of the 2013 General Assembly, NC legislators passed a 56-page bill that changes how, when, and where voters can cast ballots and also changes the limits and disclosure requirements for political donors.

Starting in Jan. 2014, poll officials will ask voters for a photo ID but no photo ID is required to vote until Jan. 2016. The ID must bear a “reasonable resemblance” to you (poll officials must all agree it’s not you for the ID to fail). It must be one of these:
- NC drivers license, learner’s permit or provisional license.
- NC special identification card for non-drivers.
- US passport.
- US military ID or Veterans ID card.
- Enrollment card from a federally or NC recognized tribe.
- Out-of-state driver’s license but only for 90 days after the voter registers in North Carolina. No student IDs are accepted.

The ID must not be expired, except for a voter over age 70 whose ID was current on their 70th birthday. The military and veterans IDs do not need an expiration date, but other IDs do.

Voters can cast a provisional ballot, but it will only count if they bring an acceptable ID to the county board of elections by noon of the day before the election canvass.

Voters are exempt (1) who swear they have a religious objection to being photographed or (2) who use curbside voting because of their age or physical disability. Instead of a photo, these voters may show a utility bill, bank statement, paycheck, or government document with name and current address.

FREE IDs AND DOCUMENTS – Effective Jan. 2014
Voters who swear they don’t have an acceptable ID may apply for a free non-driver’s “special ID card” from the Division of Motor Vehicles (DMV). They must be registered or register when they apply. To apply, voters must show the DMV a birth certificate (and if their name changed, maybe a marriage license), plus documents showing their residence. A NC county register of deeds must furnish free the birth certificate and marriage license, but that won’t help voters born out of state.

EARLY VOTING – Effective Jan. 2014
Early voting is just 10 days; the first week is cut. All sites in a county must be open the same times, except for the county elections office or its alternate. The total hours must equal at least the total hours the county provided in the similar election of 2010 or 2012 unless all local and state board members approve fewer hours.

NO SAME-DAY REGISTRATION – Effective Jan. 2014
Voters must register at least 25 days before the election. Registered voters may still update their name and address on their voter registration at an Early Voting site.

NO STRAIGHT PARTY VOTING – Effective Jan. 2014
Straight-ticket voting is eliminated. Voters must mark their preferred candidate in each race on the ballot. Candidates will be listed in order of the party of the Governor.

NO OUT-OF-PRECINCT VOTING – Effective Jan. 2014
Provisional ballots cast in the wrong precinct on Election Day will not count. Vote in your home precinct on Election Day.

MAIL-IN ABSENTEE VOTING – Effective Jan. 2014
Absentee ballot requests must be on a form from the county elections board. (Groups can mass mail forms to their favorite voters.) The form asks for your ID number (from a DMV photo ID or last 4 digits on your Social Security card) or you may mail in one of these documents with your name and current address: a utility bill, bank statement, paycheck, or any government document. The elections office will then send you the ballot. Mail the completed ballot back in the envelope provided. It must have the voter’s signature; the signatures and addresses of two witnesses OR one notary public (who can’t charge a fee), and the name, address and signature of anyone assisting a voter unable to sign.

NO TEENAGE PRE-REGISTRATION – Effective Sept. 2013
Pre-registration for 16 and 17 year olds ends. Also, Citizens Awareness Month and the required annual registration drive in high schools are eliminated (effective Jan. 2014).

POLL HOURS – Effective Jan. 2014
County elections boards may no longer order polls to stay open an extra hour due to problems. If there is a delay in opening or a problem, only the State Board of Elections may extend the closing time by an equal number of minutes.

People doing voter registration may not be paid based on the number of completed forms they submit, but they may be paid for their time.
MORE POLL “OBSERVERS” – Effective Jan. 2014
In addition to appointing two “observers” to monitor action inside each voting place, local political parties can appoint 10 more per county and put up to three in any polling place.

Any NC voter can challenge a voter as not being registered or violating another rule. On Election Day, a challenger must be from the voter’s county. The old law said any challenger must be from the voter’s precinct. The changes open the door to more challenges before and during elections.

NO PUBLIC FINANCING OPTIONS – Effective Immediately
Programs that give judicial and some executive branch candidates a chance to qualify for public financing are ended. Leftover funds will finance the judicial guide until exhausted. The tax check-off that helps political parties is also ended. Candidates and parties must rely only on private donors.

INCREASE CONTRIBUTION LIMITS – Effective Jan. 2014
Contribution limits to a local or state candidate or PAC will go up from $4,000 to $5,000 per election and increase every two years to keep up with inflation. Limits for all judicial candidates jump from $1,000 to $5,000 per election.

MORE SECRET MONEY IN ELECTIONS – Effective Jan. 2014
Because of changes in disclosure rules, outside groups may spend unlimited amounts on nasty ads against a candidate or on other “electioneering” expenses, using money from virtually any source, from the May primary to Sept. 7 of the election year, without revealing the source or amounts to the public or State Board of Elections. Mystery money from corporations or other sources may also be spent on electioneering in odd-number years against candidates.

Even for the period when disclosure is required, the public will get less information: The new law ends a requirement that print ads and mailers by outside groups include a list of the top five donors financing the ad.

CORPORATE MONEY TO PARTIES – Effective Jan. 2014
The law increases the ways corporate money may be received and spent by a political party’s “building fund.” It may be used to pay for up to 3 staff, supplies, travel, and fundraising, not just for upkeep of the party’s building.

NO MORE “STAND BY YOUR AD” – Effective Jan. 2014
North Carolina’s pioneering Stand By Your Ad law ends. It required the candidate or CEO to appear in TV or radio ads saying, “I am (xxxx) and I approve this message.” Candidates must include a small photo in TV ads for at least two seconds, but no similar acknowledgement is required in their radio ads or ads by parties or independent groups.

NO BUNDLING BY LOBBYISTS – Effective Oct. 2013
Registered lobbyists may not collect or pass along any campaign donation to a legislative or executive branch candidate, even a donation from their client’s PAC.

REGISTRATION ROLLS CLEANED – Effective Oct. 2013
The State Board is authorized to accept notices from more sources to remove deceased voters and also exchange data with states to detect NC voters registered elsewhere.

If South Carolina holds its presidential primary before March 15, then NC will hold its the next Tuesday. (This is aimed at helping NC voters pick the nominees.) The May primary would still be held for other candidates.

SPECIAL ELECTIONS – Effective Jan. 2014
The new law standardizes the dates for special elections called by local governments and makes various changes in how vacant offices are filled. Certain vacancies on the NC Court of Appeals and Supreme Court will be filled with a plurality election rather than by instant runoff.

CANDIDATE NAMES ON BALLOT – Effective Jan. 2014
In partisan races, the candidate(s) of the governor’s party appear first, in alpha order, then those of the other major party. The law lowers the number of petition signers a candidate needs to be on the ballot without paying a filing fee.

Touch screen voting machines will be banned unless they produce a paper ballot that is the voter’s official record.

The election cycle is changed to sync up with the calendar year, rather than end with the November election. Studies are authorized to exam numerous potential changes in campaign disclosure laws and other regulations.

REDISTRICTING RECORDS – Effective Jan. 2014
The law codifies a NC Supreme Court ruling that records to and from private attorneys hired by legislators for the redistricting process are not subject to the open records law.

For more details, call Democracy North Carolina at 919-286-6000 or visit www.democracy-nc.org.
2014 Registration Deadlines and Election Dates

- General Election Registration Deadline: Registrations must be received or postmarked 25 days before Election Day—October 10.
- Early Voting Period (if applicable): Early voting starts at “one-stop” absentee voting sites as early as the second Thursday before Election Day. Early voting ends at 1 pm the Saturday before Election Day. Check with your county elections office for your “one-stop” voting location.
- General Election: November 4

What Type of ID Do I Need to Vote?

For the 2014 election, you will not need any ID to vote early or on Election Day in North Carolina. The only exception is for first-time voters who registered by mail or during a voter registration drive and who failed to provide a valid North Carolina driver’s license number, state ID number, or the last 4 digits of their Social Security Number.

Beginning in 2016, voters will be required to show a photo ID when they vote at the polls. See the State Board of Elections website for more information.

What Type of ID Do I Need to Register?

- North Carolina's voter registration form asks for your North Carolina driver’s license or ID number, or the last four digits of your Social Security Number. Failure to provide this information could lead to you having to show additional identification when you vote that shows your picture or your name and address. Make sure to provide this information on the registration form so the state can verify your identity and you don't run into problems when you cast your ballot.

Register at School or Home?

Students have a choice about where to register to vote:

School residence:
- Students attending college in North Carolina may register to vote at their school address if they presently intend to make it their residence and to return there after any temporary absence like summer vacation. They do not have to plan to reside at that address permanently or after graduation.

Home residence:
- Some students may choose to register or remain registered at their home (prior) address in North Carolina or outside the state if they intend to return there after college. In this case, a student may need to vote by absentee ballot.
- North Carolina residents who move away for college can keep their North Carolina voting residency so long as they still consider North Carolina the location of their primary residence and do not register or declare residency elsewhere. These students may request to vote early by mail.

For other state’s registration information visit: www.campusvoteproject.org/studentguides

The Higher Education Act requires most colleges and universities to make a good faith effort to distribute voter registration forms to every student. Does yours?
According to the U.S. Supreme Court, students have the right to register and vote in their college towns if they meet the same requirements as everyone else. Misinformation, such as claims that registering to vote at school may jeopardize eligibility for financial aid or insurance, are sometimes used to discourage students from voting locally.

Common Questions

Will voting in North Carolina affect my federal financial aid?

Where you register to vote will not affect federal financial aid such as Pell Grants and Perkins or Stafford loans or your dependency status regarding FAFSA (Free Application for Federal Student Aid).

Will I lose my scholarship if I register to vote in North Carolina?

Generally, no. If you receive scholarship money from a state, county, town, or a private entity (i.e., an entity other than the federal government) you should confirm that residency in a particular place is not a requirement of the scholarship and/or that voter registration in North Carolina will not affect your eligibility.

Will registering to vote in North Carolina affect my driver’s license or car registration?

Registering to vote does not affect driver’s license or car registration, but individuals are required to obtain a North Carolina driver’s license within 60 days of establishing residency in the state. For more information, students may wish to contact the North Carolina Department of Motor Vehicles.

Will registering to vote in North Carolina prevent my parents from claiming me as a dependent on their taxes?

No. Students are often told that registering to vote in a different state from their parents will make them lose their dependency status. This is not true. Where you register to vote will have no effect on your parent’s tax status.

Does being an in-state or out-of-state student for tuition purposes affect my right to vote?

No. You may choose to vote in your college community or back home regardless of your tuition status.

How Can I Vote?

By Mail

All qualified voters may vote by absentee ballot. Voters must request an absentee ballot. A State Absentee Ballot request form is available at the State Board of Elections Website or at your county board of elections office. Requests must be received by the county board of elections by 5:00 p.m. on the Tuesday before Election Day.

Completed absentee ballots must be:
- Received by 5:00 p.m. on Election Day, or
- Postmarked on or before Election Day and received by 5:00 p.m. on the third day after Election Day.

Early In Person

All qualified voters may vote early at a one-stop absentee voting site beginning on the second Thursday before Election Day. Check with your county board of elections for one-stop voting locations.

Please note that you may no longer register to vote during the one-stop early voting period. However, if you are already registered to vote in that county and wish to update your registration information, you may do so during the one-stop early voting period.

On Election Day at the Polls

The polls are open from 6:30 a.m. until 7:30 p.m.

Where Do I Vote?

- Polling place locator online at http://www.ncsbe.gov/webapps/pollingplace_search/through the State Board of Elections website.
- Voters must cast their ballots in the correct precinct. Sometimes there are multiple precincts in one polling place, so confirm your precinct ahead of time and get in the correct line!

This Guide was prepared by FELN staff who are not licensed to practice law in North Carolina and FELN intends that the information contained herein is used only as a general guide. This document should not be used as a substitute for consultation with a licensed North Carolina legal professional.

Last updated July 11, 2014
Report on UNC System General Education Council
Prepared by
Roy Schwartzman, UNCG Delegation
21 September 2014

The most recent meeting of the UNCGEC was held at the UNC General Administration headquarters in Chapel Hill on Friday, September 19. Here is a brief summary of that meeting as well as the ongoing activities of the UNCGEC.

Currently the UNCGEC and several individual campuses have been exploring the viability of various instruments for system-wide quantitative and qualitative assessment of core competencies (currently identified by system-wide plebiscite earlier in 2014 as written communication and critical thinking).

- A pilot implementation of the CLA (Collegiate Learning Assessment) has been conducted at five UNC campuses, led by Fayetteville State University. Examination of this pilot has not been completed, but a key emerging question is how to maximize student buy-in to achieve not only high participation but (more importantly) high performance.
- A pilot implementation of e-portfolios is being conducted at five UNC system campuses (including UNCG, in partnership with NCA&T State University). These studies will be completed by mid-February 2015.
- Extensive discussions continue with Educational Testing Service (ETS) on developing a system-wide assessment instrument.

The UNCGEC is currently preparing a more detailed discussion regarding the prospects of a partnership with ETS to develop a standardized test for the UNC system. Fundamental methodological, pedagogical, logistical, and financial concerns are in the process of being articulated systematically and brought to the General Administration, ETS, and to the Board of Governors. Work continues in drafting a set of Operating Principles that both
  A. Satisfy the administrative calls for system-wide assessment of core competencies, and
  B. Issue appropriate caveats and limitations regarding the choice of assessment instruments and their implementation.

Attachments related to ETS discussions:
1. Principles of Evidence-Centered Assessment Design (ETS PowerPoint)

#  #  #
Assessing Critical Thinking in Higher Education: Current State and Directions for Next-Generation Assessment

Ou Lydia Liu
Lois Frankel
Katrina Crotts Roohr
Since its 1947 founding, ETS has conducted and disseminated scientific research to support its products and services, and to advance the measurement and education fields. In keeping with these goals, ETS is committed to making its research freely available to the professional community and to the general public. Published accounts of ETS research, including papers in the ETS Research Report series, undergo a formal peer-review process by ETS staff to ensure that they meet established scientific and professional standards. All such ETS-conducted peer reviews are in addition to any reviews that outside organizations may provide as part of their own publication processes. Peer review notwithstanding, the positions expressed in the ETS Research Report series and other published accounts of ETS research are those of the authors and not necessarily those of the Officers and Trustees of Educational Testing Service.

The Daniel Eignor Editorship is named in honor of Dr. Daniel R. Eignor, who from 2001 until 2011 served the Research and Development division as Editor for the ETS Research Report series. The Eignor Editorship has been created to recognize the pivotal leadership role that Dr. Eignor played in the research publication process at ETS.
Critical thinking is one of the most important skills deemed necessary for college graduates to become effective contributors in the global workforce. The first part of this article provides a comprehensive review of its definitions by major frameworks in higher education and the workforce, existing assessments and their psychometric qualities, and challenges surrounding the design, implementation, and use of critical thinking assessment. In the second part, we offer an operational definition that is aligned with the dimensions of critical thinking identified from the reviewed frameworks and discuss the key assessment considerations when designing a next-generation critical thinking assessment. This article has important implications for institutions that are currently using, planning to adopt, or designing an assessment of critical thinking.

Keywords Critical thinking; student learning outcomes; higher education; next-generation assessment

doi:10.1002/ets2.12009

Critical thinking is one of the most frequently discussed higher order skills, believed to play a central role in logical thinking, decision making, and problem solving (Butler, 2012; Halpern, 2003). It is also a highly contentious skill in that researchers debate about its definition; its amenability to assessment; its degree of generality or specificity; and the evidence of its practical impact on people's academic achievements, career advancements, and personal life choices. Despite contention, critical thinking has received heightened attention from educators and policy makers in higher education and has been included as one of the core learning outcomes of college students by many institutions. For example, in a relatively recent survey conducted by the Association of American Colleges and Universities (AAC&U, 2011), 95% of the chief academic officers from 433 institutions rated critical thinking as one of the most important intellectual skills for their students. The finding resonated with voices from the workforce, in that 81% of the employers surveyed by AAC&U (2011) wanted colleges to place a stronger emphasis on critical thinking. Similarly, Casner-Lotto and Barrington (2006) found that among 400 surveyed employers, 92.1% identified critical thinking/problem solving as a very important skill for 4-year college graduates to be successful in today's workforce. Critical thinking was also considered important for high school and 2-year college graduates as well.

The importance of critical thinking is further confirmed in a recent research study conducted by Educational Testing Service (ETS, 2013). In this research, provosts or vice presidents of academic affairs from more than 200 institutions were interviewed regarding the most commonly measured general education skills, and critical thinking was one of the most frequently mentioned competencies considered essential for both academic and career success. The focus on critical thinking also extends to international institutions and organizations. For instance, the Assessment of Higher Education Learning Outcomes (AHELO) project sponsored by the Organisation for Economic Co-operation and Development (OECD, 2012) includes critical thinking as a core competency when evaluating general learning outcomes of college students across nations.

Despite the widespread attention on critical thinking, no clear-cut definition has been identified. Markle, Brenneman, Jackson, Burrus, and Robbins (2013) reviewed seven frameworks concerning general education competencies deemed important for higher education and/or workforce: (a) the Assessment and Teaching of 21st Century Skills, (b) Lumina Foundation’s Degree Qualifications Profile, (c) the Employment and Training Administration Industry Competency Model Clearinghouse, (d) European Higher Education Area Competencies (Bologna Process), (e) Framework for Higher Education Qualifications, (f) Framework for Learning and Development Outcomes, and (g) AAC&U’s Liberal Education
Definitions of Critical Thinking

One of the most debatable features about critical thinking is what constitutes critical thinking—its definition. Table 1 shows definitions of critical thinking drawn from the frameworks reviewed in the Markle et al. (2013) paper. The different sources of the frameworks (e.g., higher education and workforce) focus on different aspects of critical thinking. Some value the reasoning process specific to critical thinking, while others emphasize the outcomes of critical thinking, such as whether it can be used for decision making or problem solving. An interesting phenomenon is that none of the frameworks referenced in the Markle et al. paper offers actual assessments of critical thinking based on the group’s definition. For example, in the case of the VALUE (Valid Assessment of Learning in Undergraduate Education) initiative as part of the AAC&U’s LEAP campaign, VALUE rubrics were developed with the intent to serve as generic guidelines when faculty members design their own assessments or grading activities. This approach provides great flexibility to faculty and accommodates local needs. However, it also raises concerns of reliability in terms of how faculty members use the rubrics. A recent AAC&U research study found that the percent agreement in scoring was fairly low when multiple raters scored the same student work using the VALUE rubrics (Finley, 2012). For example, the percentage of perfect agreement of using four scoring categories across multiple raters was only 36% when the critical thinking rubric was applied.

In addition to the frameworks discussed by Markle et al. (2013), there are other influential research efforts on critical thinking. Unlike the frameworks discussed by Market et al., these research efforts have led to commercially available critical thinking assessments. For example, in a study sponsored by the American Philosophical Association (APA), Facione (1990b) spearheaded the effort to identify a consensus definition of critical thinking using the Delphi approach, an expert consensus approach. For the APA study, 46 members recognized as having experience or expertise in critical thinking instruction, assessment, or theory, shared reasoned opinions about critical thinking. The experts were asked to provide their own list of the skill and dispositional dimensions of critical thinking. After rounds of discussion, the experts reached an agreement on the core cognitive dimensions (i.e., key skills or dispositions) of critical thinking: (a) interpretation, (b) analysis, (c) evaluation, (d) inference, (e) explanation, and (f) self-regulation—making it clear that a person does not have to be proficient at every skill to be considered a critical thinker. The experts also reached consensus on the affective, dispositional components of critical thinking, such as “inquisitiveness with regard to a wide range of issues,” “concern to become and remain generally well-informed,” and “alertness to opportunities to use CT [critical thinking]” (Facione, 1990b, p. 13). Two decades later, the approach AAC&U took to define critical thinking was heavily influenced by the APA definitions.

Halpern also led a noteworthy research and assessment effort on critical thinking. In her 2003 book, Halpern defined critical thinking as...
Table 1: Definitions of Critical Thinking From Current Frameworks of Learning Outcomes

<table>
<thead>
<tr>
<th>Framework</th>
<th>Author</th>
<th>Critical thinking term</th>
<th>Critical thinking (or equivalent) definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment and Teaching of 21st Century Skills (ATC21S)</td>
<td>University of Melbourne, sponsored by Cisco, Intel, and Microsoft</td>
<td>Ways of thinking – critical thinking, problem solving, and decision making</td>
<td>The ways of thinking can be categorized into knowledge, skills, and attitudes/values/ethics (KSAVE). Knowledge includes: (a) reason effectively, use systems thinking, and evaluate evidence; (b) solve problems; and (c) clearly articulate. Skills include: (a) reason effectively and (b) use systems thinking. Attitudes/values/ethics include: (a) make reasoned judgments and decisions, (b) solve problems, and (c) attitudinal disposition (Binkley et al., 2012)</td>
</tr>
<tr>
<td>The Degree Qualifications Profile (DQP) 2.0</td>
<td>Lumina Foundation</td>
<td>Analytical inquiry</td>
<td>A student who (a) &quot;identifies and frames a problem or question in selected areas of study and distinguishes among elements of ideas, concepts, theories or practical approaches to the problem or question&quot; (associate's level), (b) &quot;differentiates and evaluates theories and approaches to selected complex problems within the chosen field of study and at least one other field&quot; (bachelor's level), and (c) &quot;disaggregates, reformulates and adapts principal ideas, techniques or methods at the forefront of the field of study in carrying out an essay or project&quot; (master's level; Adelman et al., 2014, pp. 19–20)</td>
</tr>
<tr>
<td>The Employment and Training Administration Industry Competency Model Clearinghouse</td>
<td>U.S. Department of Labor (USDOL), Employment and Training Administration</td>
<td>Critical and analytical thinking</td>
<td>A person who &quot;possesses sufficient inductive and deductive reasoning ability to perform [their] job successfully; critically reviews, analyzes, synthesizes, compares and interprets information; draws conclusions from relevant and/or missing information; understands the principles underlying the relationship among facts and applies this understanding when solving problems&quot; (i.e., reasoning) and &quot;identifies connections between issues; quickly understands, orients to, and learns new assignments; shifts gears and changes direction when working on multiple projects or issues&quot; (i.e., mental agility; USDOL, 2013)</td>
</tr>
<tr>
<td>A Framework for Qualifications of the European Higher Education Area (Bologna Process)</td>
<td>European Commission: European Higher Education Area</td>
<td>Not specified—defined in terms of skills related to critical thinking required of students completing the first cycle (e.g., bachelor's level)</td>
<td>Students completing the first-cycle qualification (e.g., bachelor's level) &quot;can apply their knowledge and understanding in a manner that indicates a professional approach to their work or vocation, and have competences typically demonstrated through devising and sustaining arguments and solving problems within their field of study&quot; and &quot;have the ability to gather and interpret relevant data (usually within their field of study) to inform judgments that include reflection on relevant social, scientific or ethical issues&quot; (Ministry of Science Technology and Innovation, 2005, p. 194)</td>
</tr>
<tr>
<td>Framework for Higher Education Qualifications (QAA-FHEQ)</td>
<td>Quality Assurance Agency for Higher Education</td>
<td>Not specified—defined in terms of skills related to critical thinking demonstrated by students receiving a bachelor's degree with honors</td>
<td>A student who is able to &quot;critically evaluate arguments, assumptions, abstract concepts and data (that may be incomplete), to make judgments, and to frame appropriate questions to achieve a solution — or identify a range of solutions — to a problem&quot; (QAA, 2008, p. 19)</td>
</tr>
<tr>
<td>Framework for Learning and Development Outcomes</td>
<td>The Council for the Advancement of Standards (CAS) in Education</td>
<td>Critical thinking</td>
<td>&quot;Identifies important problems, questions, and issues; analyzes, interprets, and makes judgments of the relevance and quality of information; assesses assumptions and considers alternative perspectives and solutions&quot; (CAS Board of Directors, 2008, p. 2)</td>
</tr>
<tr>
<td>Liberal Education and America's Promise (LEAP)</td>
<td>Association of American Colleges and Universities</td>
<td>Critical thinking</td>
<td>&quot;A habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion&quot; (Rhodes, 2010, p. 1)</td>
</tr>
</tbody>
</table>
… the use of those cognitive skills or strategies that increase the probability of a desirable outcome. It is used to describe thinking that is purposeful, reasoned, and goal directed—the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions, when the thinker is using skills that are thoughtful and effective for the particular context and type of thinking task. (Halpern, 2003, p. 6)

Halpern’s approach to critical thinking has a strong focus on the outcome or utility aspect of critical thinking, in that critical thinking is conceptualized as a tool to facilitate decision making or problem solving. Halpern recognized several key aspects of critical thinking, including verbal reasoning, argument analysis, assessing likelihood and uncertainty, making sound decisions, and thinking as hypothesis testing (Halpern, 2003).

These two research efforts, led by Facione and Halpern, lent themselves to two commercially available assessments of critical thinking, the California Critical Thinking Skills Test (CCTST) and the Halpern Critical Thinking Assessment (HCTA), respectively, which are described in detail in the following section, where we discuss existing assessments. Interested readers are also pointed to research concerning constructs overlapping with critical thinking, such as argumentation (Godden & Walton, 2007; Walton, 1996; Walton, Reed, & Macagno, 2008) and reasoning (Carroll, 1993; Powers & Dwyer, 2003).

Existing Assessments of Critical Thinking

Multiple Themes of Assessments

As with the multivariate nature of the definitions offered for critical thinking, critical thinking assessments also tend to capture multiple themes. Table 2 presents some of the most popular assessments of critical thinking, including the CCTST (Facione, 1990a), California Critical Thinking Disposition Inventory (CCTDI; Facione & Facione, 1992), Watson–Glaser Critical Thinking Appraisal (WGCTA; Watson & Glaser, 1980), Ennis–Weir Critical Thinking Essay Test (Ennis & Weir, 1985), Cornell Critical Thinking Test (CCTT; Ennis, Millman, & Tomko, 1985), ETS’ Proficiency Profile (EPP; ETS, 2010), Collegiate Learning Assessment+ (CLA+; Council for Aid to Education, 2013), Collegiate Assessment of Academic Proficiency (CAAP Program Management, 2012), and the HCTA (Halpern, 2010). The last column in Table 2 shows how critical thinking is operationally defined in these widely used assessments. The assessments overlap in a number of key themes, such as reasoning, analysis, argumentation, and evaluation. They also differ along a few dimensions, such as whether critical thinking should include decision making and problem solving (e.g., CLA+, HCTA, and California Measure of Mental Motivation [CM3]), be integrated with writing (e.g., CLA+), or involve metacognition (e.g., CM3).

Assessment Format

The majority of the assessments exclusively use selected-response items such as multiple-choice or Likert-type items (e.g., CAAP, CCTST, and WGCTA). EPP, HCTA, and CLA+ use a combination of multiple-choice and constructed-response items (though the essay is optional in EPP), and the Ennis–Weir test is an essay test. Given the limited testing time, only a small number of constructed-response items can typically be used in a given assessment.

Test and Scale Reliability

Although constructed-response items have great face validity and have the potential to offer authentic contexts in assessments, they tend to have lower levels of reliability than multiple-choice items for the same amount of testing time (Lee, Liu, & Linn, 2011). For example, according to a recent report released by the sponsor of the CLA+, the Council for Aid to Education (Zahner, 2013), the reliability of the 60-min constructed-response section is only .43. The test-level reliability is .87, largely driven by the reliability of CLA+’s 30-min short multiple-choice section.

Because of the multidimensional nature of critical thinking, many existing assessments include multiple subscales and report subscale scores. The main advantage of subscale scores is that they provide detailed information about test takers’ critical thinking ability. The downside, however, is that these subscale scores are typically challenged by their unsatisfactory reliability and the lack of distinction between scales. For example, CCTST reports scores on overall reasoning skills and subscale scores on five aspects of critical thinking: (a) analysis, (b) evaluation, (c) inference, (d) deduction, and (e) induction. However, Leppa (1997) reported that the subscales have low internal consistency, from .21 to .51, much
Table 2 Existing Assessments of Critical Thinking

<table>
<thead>
<tr>
<th>Test</th>
<th>Vendor</th>
<th>Format</th>
<th>Delivery</th>
<th>Length</th>
<th>Forms and items</th>
<th>Themes/topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Critical Thinking</td>
<td>Insight Assessment (California Academic Press)</td>
<td>Selected-response (Likert scale — extent to which students agree or disagree)</td>
<td>Online or paper/pencil</td>
<td>30 min</td>
<td>75 items (seven scales: 9–12 items per scale)</td>
<td>This test contains seven scales of critical thinking: (a) truth-seeking, (b) open-mindedness, (c) analyticity, (d) systematicity, (e) confidence in reasoning, (f) inquisitiveness, and (g) maturity of judgment (Facione, Facione, &amp; Sanchez, 1994)</td>
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<tr>
<td>Thinking Disposition Inventory</td>
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<tr>
<td>(CCTDI)</td>
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<tr>
<td>California Critical Thinking Skills</td>
<td>Insight Assessment (California Academic Press)</td>
<td>Multiple-choice (MC)</td>
<td>Online or paper/pencil</td>
<td>45 min</td>
<td>34 items (vignette based)</td>
<td>The CCTST returns scores on the following scales: (a) analysis, (b) evaluation, (c) inference, (d) deduction, (e) induction, and (f) overall reasoning skills (Facione, 1990a)</td>
</tr>
<tr>
<td>Test (CCTST)</td>
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<tr>
<td>California Measure of Mental</td>
<td>Insight Assessment (California Academic Press)</td>
<td>Selected-response</td>
<td>Online or paper/pencil</td>
<td>20 min</td>
<td>72 items</td>
<td>This assessment measures and reports scores on the following areas: (a) learning orientation, (b) creative problem solving, (c) cognitive integrity, (d) scholarly rigor, and (e) technological orientation (Insight Assessment, 2013)</td>
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<tr>
<td>Motivation (CM3)</td>
<td></td>
<td>(Likert scale: strongly disagree to strongly agree)</td>
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<tr>
<td>Collegiate Assessment of Academic</td>
<td>ACT</td>
<td>Performance task (PT) and MC</td>
<td>Online</td>
<td>90 min (60 min for PT; 30 min for MC)</td>
<td>26 items (one PT; 25 MC)</td>
<td>The CLA+ PTs measure higher order skills including: (a) analysis and problem solving, (b) writing effectiveness, and (c) writing mechanics. The MC items assess (a) scientific and quantitative reasoning, (b) critical reading and evaluation, and (c) critiquing an argument (Zahner, 2013)</td>
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<tr>
<td>Proficiency (CAAP) Critical Thinking</td>
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<tr>
<td>Collegiate Learning Assessment</td>
<td>Council for Aid to Education (CAE)</td>
<td>Performance task (PT)</td>
<td>Online</td>
<td>90 min (60 min for PT; 30 min for MC)</td>
<td>26 items (one PT; 25 MC)</td>
<td>The CAAP Critical Thinking measures students’ skills in analyzing elements of an argument, evaluating an argument, and extending arguments (CAAP Program Management, 2012)</td>
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<td>+ (CLA+)</td>
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<tr>
<td>Test</td>
<td>Vendor</td>
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<td>Forms and Items</td>
<td>Themes/topics</td>
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<td>Cornell Critical Thinking Test (CCTT)</td>
<td>The Critical Thinking Co.</td>
<td>MC</td>
<td>Computer based (using the software) or paper/pencil</td>
<td>50 min (can also be administered untimed)</td>
<td>Level X: 71 items</td>
<td>Level X is intended for students in Grades 5–12+ and measures the following skills: (a) induction, (b) deduction, (c) credibility, and (d) identification of assumptions (The Critical Thinking Co., 2014)</td>
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<td>Level Z: 52 items</td>
<td>Level Z is intended for students in Grades 11–12+ and measures the following skills: (a) induction, (b) deduction, (c) credibility, (d) identification of assumptions, (e) semantics, (f) definition, and (g) prediction in planning experiments (The Critical Thinking Co., 2014)</td>
</tr>
<tr>
<td>Ennis–Weir Critical Thinking Essay Test</td>
<td>Midwest Publications</td>
<td>Essay</td>
<td>Paper/pencil</td>
<td>40 min</td>
<td>Nine-paragraph essay/letter</td>
<td>This assessment measures the following areas of the critical thinking competence: (a) getting the point, (b) seeing reasons and assumptions, (c) stating one’s point, (d) offering good reasons, (e) seeing other possibilities, and (f) responding appropriately to and/or avoiding argument weaknesses (Ennis &amp; Weir, 1985)</td>
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<tr>
<td>ETS Proficiency Profile (EPP) Critical Thinking</td>
<td>ETS</td>
<td>MC</td>
<td>Online and paper/pencil</td>
<td>About 40 min (full test is 2 h)</td>
<td>27 items (standard form)</td>
<td>The Critical Thinking component of this test measures a students’ ability to: (a) distinguish between rhetoric and argumentation in a piece of nonfiction prose, (b) recognize assumptions and the best hypothesis to account for information presented, (c) infer and interpret a relationship between variables, and (d) draw valid conclusions based on information presented (ETS, 2010)</td>
</tr>
<tr>
<td>Test</td>
<td>Vendor</td>
<td>Format</td>
<td>Delivery</td>
<td>Length</td>
<td>Forms and items</td>
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<tr>
<td>Halpern Critical Thinking Assessment (HCTA)</td>
<td>Schuhfried Publishing, Inc.</td>
<td>Forced choice (MC, ranking, or rating of alternatives) and open-ended</td>
<td>Computer based</td>
<td>60–80 min, but test is untimed (Form S1) 20 min, but test is untimed (Form S2)</td>
<td>25 scenarios of everyday events (five per subcategory) S1: Both open-ended and forced choice items S2: All forced choice items</td>
<td>This test measures five critical thinking subskills: (a) verbal reasoning skills, (b) argument and analysis skills, (c) skills in thinking as hypothesis testing, (d) using likelihood and uncertainty, and (e) decision-making and problem-solving skills (Halpern, 2010)</td>
</tr>
<tr>
<td>Watson – Glaser Critical Thinking Appraisal tool (WGCTA)</td>
<td>Pearson</td>
<td>MC</td>
<td>Online and paper/pencil</td>
<td>Standard: 40–60 min (Forms A and B) if timed</td>
<td>80 items</td>
<td>The WGCTA is composed of five tests: (a) inference, (b) recognition of assumptions, (c) deduction, (d) interpretation, and (e) evaluation of arguments. Each test contains both neutral and controversial reading passages and scenarios encountered at work, in the classroom, and in the media. Although there are five tests, only the total score is reported (Watson &amp; Glaser, 2008a, 2008b)</td>
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<td></td>
<td>40 items</td>
<td>40 items</td>
<td>Measures and provides interpretable subscores for three critical thinking skill domains that are both contemporary and business relevant, including the ability to: (a) recognize assumptions, (b) evaluate arguments, and (c) draw conclusions (Watson &amp; Glaser, 2010).</td>
</tr>
</tbody>
</table>

*Insight Assessment also owns other, more specialized critical thinking tests, such as the Business Critical Thinking Skills Test (BCTST) and the Health Sciences Reasoning Test (HSRT).*
lower than the reliabilities (i.e., .68 to .70) reported by the authors of CCTST (Ku, 2009). Another example is that the WGCTA provides subscale scores on inference, recognition of assumption, deduction, interpretation, and evaluation of arguments. Studies found that the internal consistency of some of these subscales was low and had a large range, from .17 to .74 (Loo & Thorpe, 1999). Additionally, there was no clear evidence of distinct subscales, since a single-component scale was discovered from 60 published studies in a meta-analysis (Bernard et al., 2008). Studies also reported unstable factor structure and low reliability for the CCTDI (Kakai, 2003; Walsh & Hardy, 1997; Walsh, Seldomridge, & Badros, 2007).

**Comparability of Forms**

Following reasons such as test security and construct representation, most assessments employ multiple forms. The comparability among forms is another source of concern. For example, Jacobs (1999) found that the Form B of CCTST was significantly more difficult than Form A. Other studies also found that there is low comparability between the two forms on the CCTST (Bondy, Koenigseder, Ishee, & Williams, 2001).

**Validity**

Table 3 presents some of the more recent validity studies for existing critical thinking assessments. Most studies focus on the correlation of critical thinking scores with scores on other general cognitive measures. For example, critical thinking assessments showed moderate correlations with general cognitive assessments such as SAT® or GRE® tests (e.g., Ennis, 2005; Giancarlo, Blohm, & Urdan, 2004; Liu, 2008; Stanovich & West, 2008; Watson & Glaser, 2010). They also showed moderate correlations with course grades and GPA (Gadzella et al., 2006; Giancarlo et al., 2004; Halpern, 2006; Hawkins, 2012; Liu & Roohr, 2013; Williams et al., 2003). A few studies have looked at the relationship of critical thinking to behaviors, job performance, or life events. Ejiogu, Yang, Trent, and Rose (2006) examined the scores on the WGCTA and found that they positively correlated moderately with job performance (corrected \( r = .32 \) to .52). Butler (2012) examined the external validity of the HCTA and concluded that those with higher critical thinking scores had fewer negative life events than those with lower critical thinking skills (\( r = -.38 \)).

Our review of validity evidence for existing assessments revealed that the quality and quantity of research support varied significantly among existing assessments. Common problems with existing assessments include insufficient evidence of distinct dimensionality, unreliable subscores, noncomparable test forms, and unclear evidence of differential validity across groups of test takers. In a review of the psychometric quality of existing critical thinking assessments, Ku (2009) reported a phenomenon that the studies conducted by researchers not affiliated with the authors of the tests tend to report lower psychometric quality of the tests than the studies conducted by the authors and their affiliates.

For future research, a component of validity that is missing from many of the existing studies is the incremental predictive validity of critical thinking. As Kuncel (2011) pointed out, evidence is needed to clarify critical thinking skills’ prediction of desirable outcomes (e.g., job performance) beyond what is predicted by other general cognitive measures. Without controlling for other types of general cognitive ability, it is difficult to evaluate the unique contributions that critical thinking skills make to the various outcomes. For example, the Butler (2012) study did not control for any measures of participants’ general cognitive ability. Hence, it leaves room for an alternative explanation that other aspects of people’s general cognitive ability, rather than critical thinking, may have contributed to their life success.

**Challenges in Designing Critical Thinking Assessment**

*Authenticity Versus Psychometric Quality*

A major challenge in designing an assessment for critical thinking is to strike a balance between the assessment’s authenticity and its psychometric quality. Most current assessments rely on multiple-choice items when measuring critical thinking. The advantages of such assessments lie in their objectivity, efficiency, high reliability, and low cost. Typically, within the same amount of testing time, multiple-choice items are able to provide more information about what the test takers know as compared to constructed-response items (Lee et al., 2011). Wainer and Thissen (1993) reported that the scoring of 10 constructed-response items costs about $30, while the cost for scoring multiple-choice items to achieve the same level of reliability was only 1¢. Although multiple-choice items cost less to score, they typically cost more in
Butler (2012) HCTA Community college students; state university students; and community adults 131 Significant moderate correlation with the real-world outcomes of critical thinking inventory ($r_{(131)} = -38$), meaning those with higher critical thinking scores reported fewer negative life events.

Ejiogu et al. (2006) WGCTA Short Form Analysts in a government agency 84 Significant moderate correlations corrected for criterion unreliability ranging from .32 to .52 with supervisory ratings of job performance behaviors; highest correlations were with analysis and problem solving ($r_{(68)} = .52$), and with judgment and decision making ($r_{(68)} = .52$).


Gadzella et al. (2006) WGCTA Short Form State university students (psychology, educational psychology, and special education undergraduate majors; graduate students) 586 Low to moderately high significant correlations with course grades ranging from .20 to .62 ($r_{(586)} = .30$ for total group; $r_{(586)} = .62$ for psychology majors).

Giddens and Gloeckner (2005) CCTST; CCTDI Baccalaureate nursing program in the southwestern United States 218 Students who passed the NCLEX had significantly higher total critical thinking scores on the CCTST entry test ($t_{(205)} = 2.5^*$, $d = 1.0$), and the CCTDI entry test ($t_{(133)} = 2.6^*^*, d = .72$) than students who failed the NCLEX.

Halpern (2006) HCTA Study 1: Junior and senior students from high school and college in California 80 high school, 80 college Moderate significant correlations with the Arlin Test of Formal Reasoning ($r = .32$) for both groups.

Hawkins (2012) CCTST Students enrolled in undergraduate English courses at a small liberal arts college 117 Moderate significant correlations between total score and GPA ($r = .45$). Moderate significant subscale correlations with GPA ranged from .27 to .43.

Giancarlo et al. (2004) CM3 9th- and 11th-grade public school students in northern California (validation study 2) 484 Statistically significant correlation ranges between four CM3 subscales (learning, creative problem solving, mental focus, and cognitive integrity) and measures of mastery goals ($r_{(482)} = .09$ to .67), self-efficacy ($r_{(482)} = .22$ to .47), SAT9 Math ($r_{(378)} = .18$ to .33), SAT9 Reading ($r_{(378)} = .13$ to .43), SAT9 Science ($r_{(380)} = .11$ to .22), SAT9 Language/Writing ($r_{(382)} = .09$ to .17), SAT9 Social Science ($r_{(378)} = .09$ to .18), and GPA ($r_{(482)} = .19$ to .35).

Study 2: Undergraduate and second-year masters students from California State University, San Bernardino 145 undergraduates, 32 masters Moderate to moderately high correlations with the Need for Cognition scale ($r = .32$), GPA ($r = .30$), SAT Verbal ($r = .58$), SAT Math ($r = .50$), GRE Analytic ($r = .59$).

Gadzella et al. (2006) Validation Study 3: Undergraduate and second-year preparatory students in Missouri (validation study 3) 587 Statistically significant correlation ranges between four CM3 subscales (learning, creative problem solving, mental focus, and cognitive integrity) and PSAT Math ($r_{(580)} = .15$ to .37), PSAT Verbal ($r_{(580)} = .20$ to .31), PSAT Writing ($r_{(291)} = .21$ to .33), PSAT selection index ($r_{(434)} = .23$ to .40), and GPA ($r_{(580)} = .21$ to .46).

Hawkins (2012) Validation Study 4: Students enrolled in undergraduate English courses at a small liberal arts college 117 Moderate significant correlations between total score and GPA ($r = .45$). Moderate significant subscale correlations with GPA ranged from .27 to .43.

Table 3 Validity Evidence

<table>
<thead>
<tr>
<th>Author/year</th>
<th>Critical thinking assessment</th>
<th>Subjects</th>
<th>Sample size</th>
<th>Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butler (2012)</td>
<td>HCTA</td>
<td>Community college students; state university students; and community adults</td>
<td>131</td>
<td>Significant moderate correlation with the real-world outcomes of critical thinking inventory ($r_{(131)} = -38$), meaning those with higher critical thinking scores reported fewer negative life events.</td>
</tr>
<tr>
<td>Ejiogu et al. (2006)</td>
<td>WGCTA Short Form</td>
<td>Analysts in a government agency</td>
<td>84</td>
<td>Significant moderate correlations corrected for criterion unreliability ranging from .32 to .52 with supervisory ratings of job performance behaviors; highest correlations were with analysis and problem solving ($r_{(68)} = .52$), and with judgment and decision making ($r_{(68)} = .52$).</td>
</tr>
<tr>
<td>Gadzella et al. (2006)</td>
<td>WGCTA Short Form</td>
<td>State university students (psychology, educational psychology, and special education undergraduate majors; graduate students)</td>
<td>586</td>
<td>Low to moderately high significant correlations with course grades ranging from .20 to .62 ($r_{(586)} = .30$ for total group; $r_{(586)} = .62$ for psychology majors).</td>
</tr>
<tr>
<td>Giddens and Gloeckner (2005)</td>
<td>CCTST; CCTDI</td>
<td>Baccalaureate nursing program in the southwestern United States</td>
<td>218</td>
<td>Students who passed the NCLEX had significantly higher total critical thinking scores on the CCTST entry test ($t_{(205)} = 2.5^<em>$, $d = 1.0$), and the CCTDI entry test ($t_{(133)} = 2.6^</em>^*, d = .72$) than students who failed the NCLEX.</td>
</tr>
<tr>
<td>Halpern (2006)</td>
<td>HCTA</td>
<td>Study 1: Junior and senior students from high school and college in California</td>
<td>80 high school, 80 college</td>
<td>Moderate significant correlations with the Arlin Test of Formal Reasoning ($r = .32$) for both groups.</td>
</tr>
<tr>
<td>Hawkins (2012)</td>
<td>CCTST</td>
<td>Students enrolled in undergraduate English courses at a small liberal arts college</td>
<td>117</td>
<td>Moderate significant correlations between total score and GPA ($r = .45$). Moderate significant subscale correlations with GPA ranged from .27 to .43.</td>
</tr>
</tbody>
</table>
### Table 3 (continued)

<table>
<thead>
<tr>
<th>Author/year</th>
<th>Critical thinking assessment</th>
<th>Subjects</th>
<th>Sample size</th>
<th>Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liu and Roohr (2013)</td>
<td>EPP</td>
<td>Community college students from 13 institutions</td>
<td>46,402</td>
<td>Students with higher GPA and students with more credit hours performed higher on the EPP as compared to students with low GPA and fewer credit hours. GPA was the strongest significant predictor of critical thinking ($\beta = .21$, $R^2 = .04$)</td>
</tr>
<tr>
<td>Watson and Glaser (2010)</td>
<td>WGCTA</td>
<td>Undergraduate educational psychology students (Taube, 1997)</td>
<td>198</td>
<td>Moderate significant correlations with SAT Verbal ($r = .43$), SAT Math ($r = .39$), GPA ($r = .30$), and Ennis–Weir ($r = .37$). Low to moderate correlations with personality assessments ranging from .07 to .33</td>
</tr>
<tr>
<td>Three semesters of freshman nursing students in eastern Pennsylvania (Behrens, 1996)</td>
<td></td>
<td></td>
<td>172</td>
<td>Moderately high significant correlations with fall semester GPA ranging from .51 to .59</td>
</tr>
<tr>
<td>Education majors in an educational psychology course at a southwestern state university (Gadzella, Baloglu, &amp; Stephens, 2002)</td>
<td></td>
<td></td>
<td>114</td>
<td>Significant correlation between total score and GPA ($r = .28$) and significant correlations between the five WGCTA subscales and GPA ranging from .02 to .34</td>
</tr>
<tr>
<td>Williams et al. (2003)</td>
<td>CCTST; CCTDI</td>
<td>First-year dental hygiene students from seven U.S. baccalaureate universities</td>
<td>207</td>
<td>Significant correlations between the CCTST and CCTDI at baseline ($r = .41$) and at second semester ($r = .26$). Significant correlations between CCTST and knowledge, faculty ratings, and clinical reasoning ranging from .24 to .37 at baseline, and from .23 to .31 at the second semester. For the CCTDI, significant correlations ranged from .15 to .19 at baseline with knowledge, faculty ratings, and clinical reasoning, and with faculty reasoning ($r = .21$) at second semester. The CCTDI was a more consistent predictor of student performance (4.9–12.3% variance explained) than traditional predictors such as age, GPA, number of college hours.</td>
</tr>
<tr>
<td>Williams, Schmidt, Tilliss, Wilkins, and Glasnapp (2006)</td>
<td>CCTST; CCTDI</td>
<td>First-year dental hygiene students from three U.S. baccalaureate dental hygiene programs</td>
<td>78</td>
<td>Significant correlation between CCTST and CCTDI ($r = .29$) at baseline. Significant correlations between CCTST and NBDHE Multiple-Choice ($r = .35$) and Case-Based tests ($r = .47$) at baseline and at program completion ($r = .30$ and .33, respectively). Significant correlations between CCTDI and NBDHE Case-Based at baseline ($r = .25$) and at program completion ($r = .40$). CCTST was a more consistent predictor of student performance on both NBDHE Multiple-Choice (10.5% variance explained) and NBDHE Case-Based scores (18.4% variance explained) than traditional predictors such as age, GPA, number of college hours.</td>
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</table>

Note.  
TWE = Test of Written English; SPM = Composite score for the national-level Malaysian Certificate of Education; NCLEX = National Council Licensure Examination; NBDHE = National Board Dental Hygiene Examination.  
* p < .05.  
** p ≤ .01.

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assessment development than constructed-response items. That being said, the overall cost structure of multiple-choice versus constructed-response items will depend on the number of scores that are derived from a given item over its lifecycle.

Studies also show high correlations of multiple-choice items and constructed-response items of the same constructs (Klein et al., 2009). Rodriguez (2003) investigated the construct equivalence between the two item formats through a meta-analysis of 63 studies and concluded that these two formats are highly correlated when measuring the same content—mean correlation around .95 with item stem equivalence and .92 without stem equivalence. The Klein et al. (2009) study compared the construct validity of three standardized assessments of college learning outcomes (i.e., EPP, CLA, and CAAP) including critical thinking. The school-level correlation between a multiple-choice and a constructed-response critical thinking test was .93.

Given that there may be situations where constructed-response items are more expensive to score and that multiple-choice items can measure the same constructs equally well in some cases, one might argue that it makes more sense to use all multiple-choice items and disregard constructed-response items; however, with constructed-response items, it is possible to create more authentic contexts and assess students’ ability to generate rather than select responses. In real-life situations where critical thinking skills need to be exercised, there will not be choices provided. Instead, people will be expected to come up with their own choices and determine which one is more preferable based on the question at hand. Research has long established that the ability to recognize is different from the ability to generate (Frederiksen, 1984; Lane, 2004; Shepard, 2000). In the case of critical thinking, constructed-response items could be a better proxy of real-world scenarios than multiple-choice items.

We agree with researchers who call for multiple item formats in critical thinking assessments (e.g., Butler, 2012; Halpern, 2010; Ku, 2009). Constructed-response items alone will not be able to meet the psychometric standards due to their low internal consistency, one type of reliability. A combination of multiple item formats offers the potential for an authentic and psychometrically sound assessment.

Instructional Value Versus Standardization

Another challenge of designing a standardized critical thinking assessment for higher education is the need to pay attention to the assessment’s instructional relevance. Faculty members are sometimes concerned about the limited relevance of general student learning outcomes’ assessment results, as these assessments tend to be created in isolation from curriculum and instruction. For example, although most institutions think that critical thinking is a necessary skill for their students (AAC&U, 2011), not many offer courses to foster critical thinking specifically. Therefore, even if the assessment results show that students at a particular institution lack critical thinking skills, no specific department, program, or faculty would claim responsibility for it, which greatly limits the practical use of the assessment results. It is important to identify the common goals of general higher education and translate them into the design of the learning outcomes assessment. The VALUE rubrics created by AAC&U (Rhodes, 2010) are great examples of how a common framework can be created to align expectations about college students’ critical thinking skills. While one should pay attention to the assessments’ instructional relevance, one should also keep in mind that the tension will always exist between instructional relevance and standardization of the assessment. Standardized assessment can offer comparability and generalizability across institutions and programs within an institution. An assessment designed to reflect closely the objectives and goals of a particular program will have great instructional relevance and will likely offer rich diagnostic information about the students in that program, but it may not serve as a meaningful measure of outcomes for students in other programs. When designing an assessment for critical thinking, it is essential to find that balance point so the assessment results bear meaning for the instructors and provide information to support comparisons across programs and institutions.

Institutional Versus Individual Use

Another concern is whether the assessment should be designed to provide results for institutional use or individual use, a decision that has implications for psychometric considerations such as reliability and validity. For an institutional level assessment, the results only need to be reliable at the group level (e.g., major, department), while for an individual assessment, the results have to be reliable at the individual test-taker level. Typically, more items are required to achieve acceptable individual-level reliability than institution-level reliability. When assessment results are used only at an aggregate level, which is how they are currently used by most institutions, the validity of the test scores is in question as students
may not expend their maximum effort when answering the items. Student motivation when taking a low-stakes assessment has long been a source of concern. A recent study by Liu, Bridgeman, and Adler (2012) confirmed that motivation plays a significant role in affecting student performance on low-stakes learning outcomes assessment in higher education. Conclusions about students’ learning gains in college could significantly vary depending on whether they are motivated to take the test or not. If possible, the assessment should be designed to provide reliable information about individual test takers, which allows test takers to possibly benefit from the test (e.g., obtaining a certificate of achievement). The increased stakes may help boost students’ motivation while taking such assessments.

**General Versus Domain-Specific Assessment**

Critical thinking has been defined as a generic skill in many of the existing frameworks and assessments (e.g., Bangert-Drowns & Bankert, 1990; Ennis, 2003; Facione, 1990b; Halpern, 1998). On one hand, many educators and philosophers believe that critical thinking is a set of skills and dispositions that can be applied across specific domains (Davies, 2013; Ennis, 1989; Moore, 2011). The generalists depict critical thinking as an enabling skill similar to reading and writing, and argue that it can be taught outside the context of a specific discipline. On the other hand, the specialists’ view about critical thinking is that it is a domain-specific skill and that the type of critical thinking skills required for nursing would be very different from those practiced in engineering (Tucker, 1996). To date, much of the debate remains at the theoretical level, with little empirical evidence confirming the generalization or specificity of critical thinking (Nicholas & Labig, 2013). One empirical study has yielded mixed findings. Powers and Enright (1987) surveyed 255 faculty members in six disciplinary domains to gain understanding of the kind of reasoning and analytical abilities required for successful performance at the graduate level. The authors found that some general skills, such as “reasoning or problem solving in situations in which all the needed information is not known,” were valued by faculty in all domains (p. 670). Despite the consensus on some skills, faculty members across subject domains showed marked difference in terms of their perceptions of the importance of other skills. For example, “knowing the rules of formal logic” was rated of high importance for computer science but not for other disciplines (p. 678).

Tuning USA is one of the efforts that considers critical thinking in a domain-specific context. Tuning USA is a faculty-driven process that aims to align goals and define competencies at each degree level (i.e., associate’s, bachelor’s, and master’s) within a discipline (Institute for Evidence-Based Change, 2010). For Tuning USA, there are goals to foster critical thinking within certain disciplinary domains, such as engineering and history. For example, for engineering students who work on design, critical thinking suggests that they develop “an appreciation of the uncertainties involved, and the use of engineering judgment” (p. 97) and that they understand “consideration of risk assessment, societal and environmental impact, standards, codes, regulations, safety, security, sustainability, constructability, and operability” at various stages of the design process (p. 97).

In addition, there is insufficient empirical evidence showing that, as a generic skill, critical thinking is distinguishable from other general cognitive abilities measured by validated assessments such as the SAT and GRE tests (see Kuncel, 2011). Kuncel, therefore, argued that instead of being a generic skill, critical thinking is more appropriately studied as a domain-specific construct. This view may be correct, or at least plausible, but there also needs to be empirical evidence demonstrating that critical thinking is a domain-specific skill. It is true that examples of critical thinking offered by members of the nursing profession may be very different from those cited by engineers, but content knowledge plays a significant role in this distinction. Would it be reasonable to assume that skillful critical thinkers can be successful when they transfer from one profession to another with sufficient content training? Whether and how content knowledge can be disentangled from higher order critical thinking skills, as well as other cognitive and affective faculties, await further investigation.

Despite the debate over the nature of critical thinking, most existing critical thinking assessments treat this skill as generic. Apart from the theoretical reasons, it is much more costly and labor-intensive to design, develop, and score a critical thinking assessment for each major field of study. If assessments are designed only for popular domains with large numbers of students, students in less popular majors are deprived of the opportunity to demonstrate their critical thinking skills. From a score user perspective, because of the interdisciplinary nature of many jobs in the 21st century workforce, many employers value generic skills that can be transferable from one domain to another (AAC&U, 2011; Chronicle of Higher Education, 2012; Hart Research Associates, 2013), which makes an assessment of critical thinking in a particular domain less attractive.
**Total Versus Subscale Scores**

Another challenge related to critical thinking assessment is whether to offer subscale scores. Given the multidimensional nature of the critical thinking construct, it is a natural tendency for assessment developers to consider subscale scores for critical thinking. Subscale scores have the advantages of offering detailed information about test takers’ performance on each of the subscales and also have the potential to provide diagnostic information for teachers or instructors if the scores are going to be used for formative purposes (Sinha, Puhan, & Haberman, 2011). However, one should not lose sight of the psychometric requirements when offering subscale scores. Evidence is needed to demonstrate that there is a real and reliable distinction among the subscales. Previous research reveals that for some of the existing critical thinking assessments, there is lack of support for the factor structure based on which subscale scores are reported (e.g., CCTDI; Kakai, 2003; Walsh & Hardy, 1997; Walsh et al., 2007). Another psychometric requirement is that the subscale scores have to be reliable enough to be of real value to score users from sample to sample and time to time. Owing to limited testing time, many existing assessments include only a small number of items in each subscale, which will likely affect the reliability of the subscale score. For example, the CLA+’s performance tasks constitute one of the subscales of CLA+ critical thinking assessment. The performance tasks typically include a small number of constructed-response items, and the reported reliability is only .43 for this subscale on one of the CLA+ forms (Zahner, 2013). Subscale scores with low levels of reliability could provide misleading information for score users and threaten the validity of any decisions based on the subscores, despite the good intention to provide more details for stakeholders.

In addition to psychometric considerations, the choice to offer a total test score alone or with subscale scores also depends on how the critical thinking scores will be used. For example, from a score user’s perspective, such as for an employer, a holistic judgment of a candidate’s critical thinking skills could be more valuable than the evaluation of several discrete aspects of critical thinking, since, in real-life settings, critical thinking is typically exercised as an integrated skill (e.g., evaluation, analysis, and argumentation) in problem solving or decision making. One of the future directions of research could focus on the comparison between the predictive validity of discrete versus aggregated critical thinking scores in predicting life, work, or academic success.

**Human Versus Automated Scoring**

As many researchers agree that multiple assessment formats are needed for critical thinking assessment, the use of constructed-response items raises questions of scoring. The high cost and rater subjectivity are frequent concerns for human scoring of constructed-response items (Adams, Whitlow, Sover, & Johnson, 1996; Ku, 2009; Williamson, Xi, & Breyer, 2012). Automated scoring could be a viable solution to these concerns. There are automated scoring tools designed to score both short-answer questions (e.g., c-rater scoring engine; Leacock & Chodorow, 2003; c-rater-ML) and essay questions (e.g., e-rater™ scoring engine; Bridgeman, Trapani, & Attali, 2012; Burstein, Chodorow, & Leacock, 2004; Burstein & Marcu, 2003). A distinction is that for short-answer items, automated scoring evaluates the content of the responses (e.g., accuracy of knowledge), while for essay questions it evaluates the writing quality of the responses (e.g., grammar, coherence, and argumentation). When the assessment results carry moderate to high stakes, it is important to examine the accuracy of automated scores to make sure they achieve an acceptable level of agreement with valid human scores. In many cases, automated scoring can be used as a substitute for the second human rater and can be compared with the score from the first human rater. If discrepancies beyond what is typically allowed between two human raters occur between the human and machine scores, additional human scoring will be introduced for adjudication.

**Faculty Involvement**

In addition to summative uses such as accreditation, accountability, and benchmarking, an important formative use of student learning outcomes scores could be to provide diagnostic information for faculty to improve instruction. In the spring 2013 survey of the current state of student learning outcomes assessment in U.S. higher education by the National Institute for Learning Outcomes Assessment (NILOA), close to 60% of the provosts from 1,202 higher education institutions indicated that having more faculty members use the assessment results was their top priority (Kuh et al., 2014). Standardized student learning outcomes assessments have long faced criticism that they lack instructional relevance. In our review, that is not a problem with standardized assessments per se, but an inherent problem when two diametrically
different purposes or uses are imposed on a single assessment. When standardization is called for to summarize information beyond content domains for hundreds or even thousands of students, it is less likely that the assessments can cater to the unique instructional characteristics the students have been exposed to, making it difficult for the assessment results to provide information that is specific and meaningful for each instructor. Creative strategies need to be employed to somehow unify these summative and formative purposes. A possible strategy is to introduce a customization component to a standardized assessment, allowing faculty, either by institution or by disciplinary domain, to be involved in the assessment design, sampling, analysis, and score interpretation process. For any student learning outcomes assessment results to be of instructional value, faculty should be closely involved in the development process and fully understand the outcome of the assessment.

Part II: A Proposed Framework for Next-Generation Critical Thinking Assessment

Operational Definition of Critical Thinking

Based on a broad review of existing frameworks of critical thinking in higher education (e.g., LEAP and Degree Qualifications Profile [DQP]) and empirical research on critical thinking (e.g., Halpern, 2003, 2010; Ku, 2009), we propose an operational definition for a next-generation critical thinking assessment (Table 4). This framework consists of five dimensions, including two analytical dimensions (i.e., evaluating evidence and its use; analyzing arguments); two synthetic dimensions, which assess students’ abilities to understand implications and consequences and to produce their own arguments; and one dimension relevant to all of the analytical and synthetic dimensions—understanding causation and explanation.

We define each of the dimensions in Table 4, along with a brief description and foci for assessing each dimension. For example, an important analytical dimension is evaluate evidence and its use. This dimension considers evidence in larger contexts, appropriate use of experts and other sources, checking for bias, and evaluating how well the evidence provided contributes to the conclusion for which it is proffered. This dimension (like the others in our framework) is aligned with definitions and descriptions from several of the existing frameworks involving critical thinking, such as Lumina’s DQP and AAC&U’s VALUE rubrics within the LEAP campaign, as well as assessments involving critical thinking such as the Programme for International Student Assessment’s (PISA) problem-solving framework.

Assessment Design for a Next-Generation Critical Thinking Construct

In the following section, we discuss the structural features, task types, contexts, item formats, and accessibility when designing a next-generation critical thinking assessment.

Structural Features and Task Types

To measure the dimensions defined in our construct, it is important to consider item types with a variety of structural features and a variety of task types, which provide elements of authenticity and engaging methods for test takers to interact with material. These features go beyond the more standard multiple-choice, short-answer, and essay types (although these types remain available for use). See Table 5 for some possible structural features that can be employed for a critical thinking assessment. Because task types specifically address the foci of assessment, and structural features describe a variety of ways the tasks could be presented for the best combination of authenticity and measurement efficiency, the possible task types are provided separately in Table 6.

Contexts and Formats

Each task can be undertaken in a variety of contexts that are relevant to higher education. One major division of contexts is between the qualitative and quantitative realms. Considerations of evidence and claims, implications, and argument structure are equally relevant to both realms, even though the types of evidence and claims, as well as the format in which they are presented, may differ. Within and across these realms are broad subject-matter contexts that are central to most higher education programs, including: (a) social science, (b) humanities, and (c) natural science. Assessments based on this framework would include representation from all of these major areas, as well as of both qualitative and quantitative
### Table 4 Critical Thinking Framework

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Description and rationale</th>
<th>Foci of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analytical dimensions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluate evidence and its use</td>
<td>Evidence provided in support of a position can be evaluated apart from the position advanced. In the foci of assessment, the factual basis for the evidence may be related to, but may also be evaluated independently of, evaluations of sources and/or biases.</td>
<td>Evaluate evidence in larger context. Consider the larger context, which may include general knowledge, additional background information provided, or additional evidence included within an argument.</td>
</tr>
<tr>
<td></td>
<td>A piece of evidence, though well founded, may yet be used inappropriately, to draw a conclusion that it does not support, or represented as providing more support than is warranted.</td>
<td>Evaluate relevance and expertise of sources. Consider the reliability of source (person, organization, and document) of evidence included in an argument. In evaluating sources, students should be able to consider such factors as relevant expertise, access to information.</td>
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<tr>
<td></td>
<td></td>
<td>Recognize possibilities of bias in evidence offered. Consider potential biases in persons or other sources providing or organizing data, including potential motivations a source may have for providing truthful or misleading information.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluate relevance of evidence and how well it supports the conclusion stated or implied in the argument. Evaluate overall relevance of evidence for the conclusion. Evaluate consistency of conclusions drawn or posited with evidence presented. Evaluate strength of evidence offered.</td>
</tr>
<tr>
<td>Analyze and evaluate arguments</td>
<td>It can be difficult to evaluate an argument without an adequate grasp of its structure: what is assumed (implicitly or explicitly)? How does the author intend the premises to lead to the conclusion? Are there intermediate argument steps? Knowing the relationships among parts of an argument is helpful in finding its strong and weak points.</td>
<td>Analyze argument structure. Identify stated and unstated premises, conclusions, intermediate steps. Understand the language of argumentation, recognizing linguistic cues. Evaluate argument structure. Distinguish valid from invalid arguments, including recognizing structural flaws that may be present in an invalid argument, such as holes in reasoning.</td>
</tr>
<tr>
<td><strong>Synthetic dimensions</strong></td>
<td></td>
<td></td>
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<tr>
<td>Understand implications and</td>
<td>The conclusion of an argument is not always explicitly stated. Furthermore, arguments and positions on issues can have consequences and implications that go beyond the original argument: If we accept some particular principle, what follows? What might be some possible results (intended or otherwise) of a recommended course of action?</td>
<td></td>
</tr>
<tr>
<td>consequences</td>
<td></td>
<td>Draw or recognize conclusions from evidence provided. When a conclusion is not explicitly stated in an argument or collection of evidence, draw or recognize deductive and supported conclusions.</td>
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<tr>
<td></td>
<td></td>
<td>Extrapolate implications. Take the reasoning to the next step(s) to understand what further consequences are supported or deductively implied by an argument or collection of evidence.</td>
</tr>
</tbody>
</table>
### Table 4 Continued

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Description and rationale</th>
<th>Foci of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop sound and valid arguments</td>
<td>This dimension recognizes that students should be able to not only understand and evaluate arguments made by others, but also to develop their own arguments which are valid (based on good reasoning) and sound (valid and based on good evidence)</td>
<td>Enter valid arguments Employ reasoning structures that properly link evidence with conclusions Develop sound arguments Select or provide appropriate evidence, as part of a valid argument</td>
</tr>
<tr>
<td>Relevant to analytical and synthetic dimensions</td>
<td>This dimension is applicable to and works with all of the analytical and synthetic dimensions, because it can involve considerations of evidence, implications, and argument structure, as well as either evaluation or argument production. Causes or explanations feature prominently in a wide range of critical thinking contexts</td>
<td>Evaluate causal claims, including distinguishing causation from correlation, and considering possible alternative causes or explanations Generate or evaluate explanations</td>
</tr>
</tbody>
</table>
Table 5 Possible Assessment Structural Features

<table>
<thead>
<tr>
<th>Structural feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark material in text</td>
<td>This structure requires examinees to mark up a text according to instructions provided. From a group of statements provided, examinees select statements that individually or jointly play a particular role.</td>
</tr>
<tr>
<td>Select statements</td>
<td>Examinees create or fill in tables based on directions given.</td>
</tr>
<tr>
<td>Produce a diagram</td>
<td>Examinees produce or fill in a diagram that analyzes or evaluates material.</td>
</tr>
<tr>
<td>Multistep selections</td>
<td>Examinees go through a series of steps involving making selections, the results of which then generate further selections to make.</td>
</tr>
<tr>
<td>Short constructed-response</td>
<td>Examinees must respond in their own words to a prompt based on text, graph, or other stimuli.</td>
</tr>
<tr>
<td>Essay</td>
<td>Based on material supplied, examinees write an essay evaluating an argument made for a particular conclusion or produce an argument of their own to support a position on an assigned topic.</td>
</tr>
<tr>
<td>Single- and multiple-selection</td>
<td>Examinees select one or more answer choices from those provided. They may be instructed to select a particular number of choices or to select all that apply. The number of choices offered may vary.</td>
</tr>
</tbody>
</table>

Table 6 Possible Task Types for Next-Generation Critical Thinking Assessment

<table>
<thead>
<tr>
<th>Task type</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Categorize information</td>
<td>Examinees categorize a set of statements drawn from or pertaining to a stimulus.</td>
</tr>
<tr>
<td>Identify features</td>
<td>Examinees identify one or more specified features in an argument or list of statements. Such features might include opinions, hypotheses, facts, supporting evidence, conclusions, emotional appeals, reasoning errors, and so forth.</td>
</tr>
<tr>
<td>Recognize evidence/conclusion relationships</td>
<td>Examinees match evidence statements with the conclusions they support or undermine.</td>
</tr>
<tr>
<td>Recognize inconsistency</td>
<td>From a list of statements, or an argument, examinees indicate two that are inconsistent with one another or one that is inconsistent with all of the others.</td>
</tr>
<tr>
<td>Revise argument</td>
<td>Examinees improve a provided argument according to provided directions.</td>
</tr>
<tr>
<td>Supply critical questions</td>
<td>Examinees provide or identify types of information that must be sought in order to evaluate an argument or claim (Godden &amp; Walton, 2007).</td>
</tr>
<tr>
<td>Multistep argument evaluation or creation</td>
<td>To go beyond a surface understanding of relationships between evidence and conclusions (supporting, undermining, irrelevant), examinees proceed through a series of steps to evaluate an argument.</td>
</tr>
<tr>
<td>Detailed argument analysis</td>
<td>Examinees analyze the structure of an argument, indicating premises, intermediate and final conclusions, and the paths used to reach the conclusions.</td>
</tr>
<tr>
<td>Compare arguments</td>
<td>Two or more arguments for or against a claim are provided. Examinees compare or describe possible interactions between the arguments.</td>
</tr>
<tr>
<td>Draw conclusion/extrapolate information</td>
<td>Examinees draw inferences from information provided or extrapolate additional likely consequences.</td>
</tr>
<tr>
<td>Construct argument</td>
<td>Based on information provided, examinees construct an argument for or against a particular claim, or, construct an argument for or against a provided claim, drawing on one's own knowledge and experience.</td>
</tr>
</tbody>
</table>

material appropriate to a given subject area. The need to include quantitative material and skills (e.g., understanding of basic statistical topics such as sample size and representation) is borne out by literature indicating that quantitative literacy is one of the least prepared skill domains reported by college graduates (McKinsey & Company, 2013).

In addition to varying contexts, evidence, arguments, and claims, it is recommended that a critical thinking assessment include material presented in a variety of formats, as it is important for higher education to equip students with the ability to think critically about materials in various formats. Item formats can include graphs, charts, maps, images or figures, audio, and/or video material as evidence for a claim, or may be entirely presented using audio and/or video. In addition,
a variety of textual or linguistic style formats may be used (e.g., letter to editor, public address, and formal debate). In these cases, it is important for assessment developers to be clear about the extent to which the use of a particular format is intended primarily as an authentic method of conveying the evidence and/or argument, and when it is instead intended to be used to test students’ ability to work with those specific formats. Using the language of evidence-centered design (e.g., Hansen & Mislevy, 2008), this can be referred to as distinguishing cases where the ability to use a particular format is focal to the intended construct (and thus is essential to the item) from those where it is nonfocal to the intended construct (and thus the format can, as needed, be replaced with one that is more accessible). Items that require the use of certain nonfocal abilities can pose an unnecessary accessibility challenge, as we discuss below.

**Delivery Modes and Accessibility**

Accessibility to individuals with disabilities is important to ensure that an assessment is valid for all test takers, as well as to ensure fairness and inclusiveness. Based on data from the U.S. Department of Education and National Center for Education Statistics (Snyder & Dillow, 2012, Table 242) in 2007–2008, about 11% of undergraduate students reported having a disability. Accessibility for individuals with disabilities or those not fluent in the target language or culture must be considered when determining whether and how to use the format elements described above in assessment design. In cases where the item formats are introduced primarily for authenticity, as opposed to direct measurement of facility with the format, alternate modes of presentation should be made available. With these considerations in mind, it is important to design an assessment with a variety of delivery modes. For example, for a computer-based item requiring examinees to categorize statements, most examinees could do so by using a drag-and-drop (or a click-to-select, click-to-place) interface. Such interfaces are difficult, however, for individuals with disabilities that interfere with mouse use, such as visual or motor impairments. Because these mouse-mediated methods of categorizing are only means to record responses, not the construct being tested, examinees could alternatively fill in a screen reader-friendly table, use a screen-readable drop-down menu, or type in their responses. Similarly, when examinees are asked to select statements in a passage, they might click on them to highlight with a mouse, make selections from a screen reader-friendly drop-down list, or type out the relevant statements. As each item and item type is developed, care must be taken to ensure that there will be convenient and accessible methods for accessing the questions and stimulus material and for entering responses. That is, the assessment should employ features that enhance authenticity and face validity for most test takers, but that do not undermine accessibility and, hence, validity for test takers with disabilities and without access to alternate methods of interacting with the material.

Some of the considerations advanced above may be clarified by a sample item (Figure 1), fitting into one of the synthetic dimensions: develop sound and valid arguments. This item requires the examinee to synthesize provided information to create an argument for an assigned conclusion (that the temperature in the tropics was significantly higher 60 million years ago than it is now). The task type (Table 6) is “construct argument,” and its structural feature (Table 5) is “select statements,” which involves typing their numbers into boxes. Other selection methods are possible without changing the construct, such as clicking to highlight, dragging and dropping into a list of selections, and typing or dictating the numbers matching the selected statements. Because the item is amenable to a variety of interaction methods, it is fully accessible while breaking the bounds of a traditional multiple-choice item. Finally, it is in the natural science context, making use of qualitative reasoning.

**Potential Advantages of the Proposed Framework and Assessment Considerations**

There are several features that distinguish the proposed framework and assessment from existing frameworks and assessments. First, it intends to capture both the analytical and synthetic dimensions of critical thinking. The dimensions are clearly defined, and the operational definitions are concrete enough to be translated into assessments. Some of the existing assessments lump multiple constructs together and vaguely call them critical thinking and reasoning without clearly defining what each component means. In our view, our framework and assessment specifications build on many existing efforts and represent the critical step from transforming a framework into an effective assessment. Second, our considerations for a proposed critical thinking assessment recommend employing multiple assessment formats, in addition to traditional multiple-choice items and short-answer items. Innovative item types can enhance the measurement of a wide
Directions: Read the background information and then perform the task.

Background

*Titanoboa cerrejonensis* is a prehistoric snake that lived in the tropics about 60 million years ago.

Task: Identify three of the following statements that together constitute an argument in support of the claim that the temperature in the tropics was significantly higher 60 million years ago than it is now.

1. As they are today, temperatures 60 million years ago were significantly higher in the tropics than in temperate latitudes.
2. High levels of carbon dioxide in the atmosphere lead to high temperatures on Earth’s surface.
3. Larger coldblooded animals require higher ambient temperatures to maintain a necessary metabolic rate.
4. Like other coldblooded animals, *Titanoboa* depended on its surroundings to maintain its body temperature.
5. Muscular activity would have led to a temporary increase in the body temperature of *Titanoboa*.
6. *Titanoboa* is several times larger than the largest snakes now in existence.

In the boxes below, type in the numbers that correspond to the statements you select.

Figure 1 A sample synthetic dimension item (i.e., develop sound and valid arguments). This item also shows the construct argument task type, the select-statements structural feature, and natural science context.

range of critical thinking skills and are likely to help students engage in test taking. Third, the new framework and assessment emphasize the critical balance between the authenticity of the assessment and its technical quality. The assessment should include both real-world and higher level academic materials, as well as students’ analyses or creation of extended arguments. At the same time, rigorous analyses should be done to ensure the psychometric standards of the assessment. Finally, our considerations for assessment emphasize the commitment of providing access to test takers with disabilities, including low-incidence sensory disabilities (e.g., blindness), which is unparalleled among existing assessments. Given the substantial percentage of disabled students in undergraduate education, it is necessary to ensure that the hundreds of thousands of students whose access is otherwise denied will have the opportunity to demonstrate their critical thinking ability.

Conclusion

Designing a next-generation critical thinking assessment is a complicated effort and requires the collaboration between domain experts, assessment developers, measurement experts, institutions, and faculty members. Coordinated efforts are required throughout the process of assessment development, including defining the construct, designing the assessment, pilot testing and field testing to evaluate the psychometric quality of the assessment items and establish scales, setting standards to determine the proficiency levels, and researching validity. An assessment will also likely undergo iterations for improved validity, reliability, and connections to general undergraduate education. With the proposed framework for a next-generation critical thinking assessment, we hope to make the assessment approach more transparent to the stakeholders and alert assessment developers and score users to the many issues that influence the quality and practical uses of critical thinking scores.
References


**Action Editor:** Donald Powers

**Reviewers:** Douglas Baldwin and Paul Deane

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Principles of Evidence-Centered Assessment Design

Paul Rybinski
Senior Assessment Specialist
ETS Higher Education
Evidence-Centered Design (ECD)

A complex assessment design based on:

• the inferences you want to make about test takers based on their performance
• the observations needed to ground the inferences
• the situations that will evoke the observations
• the chain of reasoning that connects everything

Messick, 1994
ECD Activities

Assessment as a special case of evidentiary reasoning:

• What set of knowledge, skills, or other attributes should be assessed?
• What behaviors or performances should review these constructs?
• What tasks or situations should elicit these behaviors?

Mislevy, Almond & Lukas, 2003
ECD: A Framework for Assessment Development

- Models of SLOs & Competencies
- Evidence-Centered Design
- Tasks
- Evidence-Centered Design
- Tasks
- Tasks
- Scores & Decisions

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ECD Design Process

- **What information will you report?**
- **What will scores say about student performance?**
- **What evidence is used to make inferences?**
- **What are the features of the tasks used to collect the evidence?**
Claims and Subclaims

Examinee can successfully apply college-level critical thinking skills in various real-world scenarios.

- Examinee can evaluate evidence and its use.
- Examinee can evaluate the consistency of hypotheses and conclusions.
- Examinee can evaluate quantitative elements of evidence.
Applying ECD

- Claims
- Tasks
- Evidence
Critical Thinking as an Example
## Construct Definition – Critical Thinking

### Analytical Dimensions

**Evaluate evidence and its use**
Evaluate the evidence itself, including its larger context, its relevance to the argument, appropriateness of sources, and possibilities of bias.

**Analyze and evaluate arguments**
Understand/assess the structure of the argument, independent of the evidence offered. Identify stated and unstated premises, conclusions, intermediate steps. Understand the language of argumentation, recognizing linguistic cues. Distinguish valid from invalid arguments, including recognizing structural flaws that may be present in an invalid argument, e.g., “holes” in reasoning.

### Synthetic Dimensions

**Understand implications and consequences**
Identify unstated conclusions or implications and consequences that go beyond the original argument.

**Develop sound and valid arguments**
Students should be able not only to understand and evaluate arguments made by others, but to develop their own arguments which are valid (based on good reasoning) and sound (valid and based on good evidence).

### Causation / Explanation

**Generate or Evaluate causal claims / Generate or Evaluate explanations**
Applicable to and works with all of the analytical and synthetic dimensions: it can involve considerations of evidence, implications, argument structure, as well as either evaluation or argument production.
Assessment Considerations

• Structural features
  – Mark material in text, select statements, produce a diagram, essay,…

• Task types
  – Categorize information, recognize evidence, construct argument,…

• Contexts and formats

• Delivery modes and accessibility
Written Communication
<table>
<thead>
<tr>
<th>Framework Dimensions</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge of Social and Rhetorical Situations</strong></td>
<td></td>
</tr>
<tr>
<td>Task, Context, Purpose, and Audience</td>
<td>Adapt one’s writing to demands of the task, context, purpose, and audience</td>
</tr>
<tr>
<td>Genre-Specific Conventions</td>
<td>Adhere to genre conventions, such as argument, exposition/explanation</td>
</tr>
<tr>
<td>Composing in Multiple Modes/Forms</td>
<td>Use traditional and digital modes of production; create multimedia products</td>
</tr>
<tr>
<td><strong>Domain Knowledge and Conceptual Strategies</strong></td>
<td></td>
</tr>
<tr>
<td>Use of Sources and Textual Evidence</td>
<td>Incorporate information from source texts to support one’s ideas, accurately representing the source’s meaning, using summary, paraphrase, and quotation, with appropriate citations</td>
</tr>
<tr>
<td>Content Development and Organization</td>
<td>Develop one’s ideas using sufficient reasons, examples, and evidence; present one’s ideas in an organized, logical, and coherent sequence, to make complex ideas clear and understandable.</td>
</tr>
<tr>
<td>Discipline-Specific Conventions</td>
<td>Adhere to discipline-specific conventions, such as standards of evidence, text organization, etc.</td>
</tr>
<tr>
<td>Framework Dimensions</td>
<td>Definition</td>
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<tr>
<td><strong>Knowledge of Language Use and Conventions</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Word Choice, Tone, Voice, and Style</strong></td>
<td>The ability to compose text that conveys meaning clearly by using appropriate word choice, sentence variety, tone, voice, and style; what is appropriate will be determined by the context, purpose, and genre of writing.</td>
</tr>
<tr>
<td><strong>Grammar, usage, syntax, and mechanics</strong></td>
<td>The ability to compose text that is relatively free of errors in grammar, usage, mechanics, syntax, and spelling. Command of the fundamental skills needed to produce fluent text.</td>
</tr>
<tr>
<td><strong>Knowledge of the Writing Process</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Planning, Drafting, and Revision</strong></td>
<td>Strategic knowledge of the writing process, including pre-writing strategies (idea generation, research), drafting, reviewing, revising, editing, and responding to others' feedback.</td>
</tr>
</tbody>
</table>
Research Considerations

• Diverse student population in higher education
  – English language learners
  – International students
• Motivation
• Validity and use of scores
  – Predictive validity
• Value-added methodology
Solving the Textbook Cost Crisis with Open Educational Resources

2014 Faculty Senate Scholarly Communications Forum

October 23rd 3:30 – 5:00 EUC Kirkland Room

Introduction by Provost Dana Dunn

Speaker – Nicole Allen - Director of Open Education for the Scholarly Publishing and Academic Resources Coalition (SPARC)

Panel discussion to follow

The cost of college textbooks has grown to a point that virtually every campus is now seeking solutions. While many colleges and universities like UNCG have successfully reduced costs through stop-gap measures such as rental programs, the greatest potential for permanently solving the problem lies in Open Educational Resources (OERs), which are academic materials that are freely available online for everyone to use, adapt, and share. Institutions across the country have begun to leverage OERs to reduce textbook costs, expand access to information, and enable faculty to better tailor materials to their courses. This talk will provide an overview of the OER movement to date, including how to identify OERs, how they are created, and research showing the impact on students. It will also help frame the opportunity for UNCG to advance OER on campus.
UNC Faculty Assembly
2014-2015

Following is a list of meeting dates and topics to be considered by the UNC-system's Faculty Assembly. The meetings are full-day meetings, held on Fridays, and the UNC-systems General Administration building in Chapel Hill. UNCG has four delegates at this meeting. For more information about Faculty Assembly, please see: https://www.northcarolina.edu/?q=leadership-policy/faculty-assembly

I invite you to seek further information on the topics, or to share comments on the topics, with Soma Jovanovic (especially Shared Governance), John Lepri (especially Institutional Resources) or Kathy Crowe (especially Student Success).

September 5, 2014 -- Shared Governance: controversies and conventions.


January 9, 2014 -- Faculty Welfare: workloads, performance review, tenure, faculty appointments.

February 20, 2015 -- Institutional Resources: strategic planning, faculty/staff/administration ratios, personnel/instructional/infrastructure costs.

April 17, 2015 -- Employee Welfare: benefits (healthcare, retirement, other), salaries, equity issues (gender, sexuality, race), faculty/staff relations.
Welcome by Steve Leonard, FA Chair, took place at 9am.
A panel discussion of faculty and shared governance was facilitated by Steve Leonard, with panelists Tom Ross, UNC President, Catherine Rigsby, Faculty Assembly Chair Emerita, Deborah Saunders-White, NCCU Chancellor and Gabriel Lugo, UNCW Faculty Senate. An organizational chart showed that the NC General Assembly elects the UNC Board of Governors, and the UNC President (Ross) reports to the Board. Comments on “silos” with disparate goals and lack of transparency were included during this discussion, with, of course, comments and discussion devoting concerted energy instead to finding shared goals in education and research to unite faculty, staff and administrators. Faculty must always have primary responsibility for curricular issues, assessment of learning, and faculty hiring and evaluation. Support staff will have primary responsibility for many of the physical and paperwork needs of students, and the chancellor will manage the entire enterprise. Education has clearly attracted new demands on educational systems. The problem of trust between support staff, faculty and administrative oversight was discussed, with the recognition that shared governance is a fragile balance, with a high priority for trust between participants, with verification. Strong relationships between these groups can withstand disagreement. Faculty involvement in broader areas of university operations would help to build that trust. The discussion shifted to the “trust but verify” side of the equation by looking at metrics of student success: jobs, real value of an education, competency-based credit. Comments returned often to the central role of faculty in assuring that students have access to the best possible educational experience. Collaboration, trust, transparency, competency, shared objective and faculty participation will serve well in achieving that best possible experience. While faculty serve in advisory roles, they must also often serve in advocacy roles – lacking authority to impose change is not the same thing as lacking influence to make changes.

The following committees met after lunch and then reported to the group, as noted below.

a. Academic Curriculum Committee: this website < online.northcarolina.edu > was discussed (the system now has TWO Vice Presidents, one for regular academic delivery and one for on-line delivery; as if the two methods do not match student learning outcomes, even if they give the same credits). Should students be first qualified before being enrolled in on-line courses? How does one calculate “contact hours” in an on-line course? To illustrate challenges faced in determining equivalency, one faculty described a fictional SCUBA course delivered on-line.

b. Student Success Committee: Overlap with above committee noted. Definition of student success is one of the biggest challenges we face, as is institutional success. GEC was discussed, along with ETS assessment that has been developed; discussed course withdrawal limits; will seek data on Minimum Admission Requirements.

c. Institutional Resources Committee: generated these priorities for the upcoming year: understanding budgets better; reviewing salary-pools balance between faculty, administration and support; entities, e.g., Parking, exert too much control over resources? Better anticipating Budget Changes; urging UNC-system colleagues to focus budget discussions on student outcomes and opportunities... if overspending is uncovered, where will funds go? Urging research exchanges within the UNC system, especially co-PI, subcontracts, and arrangements that exchange faculty and students; smaller schools will gain experience toward getting their own grants. Homework: reporting each school’s efforts to diversify its income stream; understand differences in the fate of indirect costs (F&A); how well do cluster hires work; caution that forcing financial independence on flagship schools could lead to U-VA-style departure from system of public education; exploring the balance of TTF and NTTF; justification of class-size limits; developing a booklet with “Best Practices for Faculty Participation in Budgeting;” seeking additional retirement-contribution-matching. Lepri chairs this committee.

d. Faculty Welfare Committee: Resolutions passed seeking to i. reduce the amount of personal information while enrolling in the State Health Plan and ii. to more clearly define and verify the number of hours worked by part-time non-tenure-track faculty. The group also discussed faculty-retention funds and ethics, and proposed establishing a high-level faculty-welfare position on each campus.

e. Shared Governance Committee: Communication was the theme of this group’s discussions. Drew Moretz, the GA’s state-legislative liaison, would benefit by our sharing discussions. Workload and post-tenure review policies from the Board of Governors have been delivered to campuses. Shared Governance principles are posted on the Faculty Assembly website, and a small flyer with Best Practices described will be produced. Jim Carmichael is on this committee.

Senate Chairs are looking at faculty-resignation dynamics and costs. Questions of data quality must include changes in faculty composition (tenure-track versus non-tenure-track). Board of Governors Budget and Retention data are available on the Board’s web site.

Historically minority institutions (or Minority Serving Institutions, MSI, a designation that now includes UNCG) reported discussion of similar topics, with special attention to policy changes that might differentially and adversely affect HMIs. Adjourned at 4pm.
Opening Up the Books:
UNCG’s Revenue and Spending

What proportion of its revenue does UNCG spend on its core academic mission?
Are non-tenure track faculty replacing tenure-track faculty?
Are teaching salaries and benefits fair and equitable?

UNCG-AAUP, UNCG Faculty Senate, and Scholars for North Carolina’s Future present
Howard Bunsis
Professor of Accounting, Eastern Michigan University
Chairman of the national AAUP Collective Bargaining Congress

Friday, October 24 from 2:00 to 4:30 pm
Weatherspoon Auditorium

Recently featured in the Chronicle of Higher Education, Professor Bunsis conducts financial analyses for about a dozen universities each year at the request of campus AAUP chapters, using audited financial reports and IPEDS data.

Dr. Bunsis will present his analysis of UNCG’s spending trends over the past five years to educate UNCG faculty, staff, and students, neighboring AAUP chapters, and the Greensboro community about university finance.

Open to the public, including a question and answer session, followed by a wine and cheese reception in the Weatherspoon Atrium. Sponsored in part by dues-paying members of AAUP.
The University of North Carolina at Greensboro
Faculty Senate
Resolution #FS10012014-04

To Allow Undergraduates Who Began Enrollment Before Fall 2014
to Meet the Student Success Standards in the Catalog Under Which They Enrolled

WHEREAS, the Board of Governors’ Regulations 400.1.5[R] on “Fostering Student Success” required the creation of new Course Withdrawal, Withdrawal from the University, and Academic Good Standing policies effective Fall 2014; and,

WHEREAS, clarification from UNC General Administration confirms that campuses may permit continuing (pre-2014/2015) undergraduates to continue matriculating under the policies outlined in their catalog year instead of following the new policies; and,

WHEREAS, the faculty believes allowing students to complete their programs under the same university rules as when they started is both fair and less confusing than applying the new policies referenced above,

THEREFORE, BE IT RESOLVED, that, retroactive to the beginning of the fall 2014 semester, undergraduate students who enrolled at UNCG before fall 2014 will be allowed to meet the student success standards set forth in the catalog under which they enrolled.

<table>
<thead>
<tr>
<th>Faculty Senate Action/Date:</th>
<th>Effective Date: Immediately following all required approvals.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chancellor Action/Date:</td>
<td>Implementation of Resolution: The Faculty Senate Office will collaborate with the Office of the Provost to notify affected persons and offices to coordinate the update of printed and electronic forms and publications.</td>
</tr>
<tr>
<td>General Faculty Action/Date:</td>
<td></td>
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<tr>
<td>Board of Trustees Action/Date:</td>
<td></td>
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<tr>
<td>UNC GA or BOG Action/Date:</td>
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