

REPORT OF THE WASC VISITING TEAM  
CAPACITY AND PREPARATORY REVIEW

To HARVEY MUDD COLLEGE

October 6-8, 2009

Submitted In Partial Fulfillment of the Requirements for

REAFFIRMATION OF ACCREDITATION

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The evaluation team in conducting its review was able to evaluate the institution under the WASC Commission Standards and the Core Commitment for Institutional Capacity and therefore submits this Report to the Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges for action and to the institution for consideration.

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**VISITATION TEAM REPORT  
FOR REAFFIRMATION OF ACCREDITATION  
HARVEY MUDD COLLEGE  
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**SECTION I – OVERVIEW AND CONTEXT**

**A. Description of Institution and Visit**

Harvey Mudd College, founded in 1955, is an undergraduate college with a mission to educate scientists, engineers, and mathematicians whose preparation in the humanities and social sciences enables them to assume leadership in their fields informed by a clear understanding of the impact of their work on society. Admissions criteria are highly selective. The College enrolls approximately 735 students. A small (9:1) student-faculty ratio permits teachers and learners to work together closely, notably in the College's extensive experiential learning program. In addition to a major program, the curriculum features a common core of foundation courses from each department and a humanities and social science requirement. Harvey Mudd College is a member of The Claremont Colleges, a consortium of five undergraduate colleges and two graduate institutions located in Claremont, CA.

Following the installation of a new president in 2006, the College carried out a comprehensive strategic planning process and identified six areas to emphasize in pursuit of the institution's mission. Recent curricular review led the faculty to devise a substantial revision to the Core Curriculum and to develop a new interdisciplinary writing course.

In June 1987 the Commission reaffirmed the accreditation of Harvey Mudd College and scheduled a fifth-year visit in the fall of 1991. The Commission cancelled the fall 1991 visit and scheduled a comprehensive visit in the fall of 1994, which was again postponed until fall 1999. The reaffirmation visit took place November 16-19, 1999. In February 2000, the Commission

reaffirmed accreditation, endorsed the visitation team's recommendations that the institution should "address issues of student culture, encourage experimentation and innovation, and continue to strengthen its progress on diversity." The Commission also highlighted for the institution's consideration areas of mission and leadership, educational effectiveness, and student development and campus climate. The Commission requested a Fifth-Year report on issues raised in the action letter and team report and scheduled a comprehensive visit in fall 2009. With the advent of the three-stage model, the Commission canceled the Fifth-Year report and set the Capacity and Preparatory Review for fall 2009. The institution submitted a revised Institutional Proposal on October 1, 2007, proposing a thematic review focused on issues of experiential learning and diversity. The Commission approved the proposal in November 2007.

### **B. The Capacity and Preparatory Review Report: Alignment with the Proposal and Quality and Rigor of the Review and Report**

Harvey Mudd College proposed to examine two themes in its Capacity and Preparatory self-review (CPR): experiential learning and diversity. On the first theme, the institution sought to understand better how to optimize student experiential learning opportunities in its capstone clinic and undergraduate research opportunities and also how these experiences affect student learning and what curricular changes would improve student learning. Regarding diversity, the institution sought to better understand how to increase and benefit from diversity among its students, faculty, staff, administration, and trustees.

The College's Report is generally consistent with the Institutional Proposal. Two of three central essays focus on experiential learning and diversity. A third essay examines assessment of student learning at Harvey Mudd College. The additional essay is consistent with the proposed focal themes, as both issues involve assessment challenges. The assessment essay, which grew organically from the faculty's work on the core curriculum revisions and the development of the

new writing course, also provides useful information and analysis concerning the institution's preparedness for the Educational Effectiveness Review.

The CPR Report provided a mixed basis for the visiting team's evaluation. The report is, in the main, well-organized and clearly written and presented. Its structure tracks closely the themes and sub-themes anticipated in the Institutional Proposal. The report portrays Harvey Mudd College grappling seriously with how to raise its experiential learning curriculum to the highest level of excellence and how it can improve and benefit from diversity in various dimensions.

However, the detail of exposition, quality of analysis, and clarity of writing in the Report do not sufficiently convey the breadth, depth, and quality of work underway at the institution in relation to the three themes. Nor does the Report itself provide a full description and evaluation of the College's responses to the 2000 Commission Action Letter in areas including student's social development, campus climate, and the promotion of innovative pedagogies in engineering, mathematics, and science. Reading the Report alongside Appendix 16 of the Institutional Proposal provides a more comprehensive view of HMC's responses to the 2000 Commission Action Letter.

The College community was significantly engaged in conducting the CPR review and developing the CPR Report. Members of the faculty especially have been engaged through the College's WASC Steering Committee and a set of faculty sub-committees that worked on the thematic essays in the Report. The monthly faculty meeting received regular reports about the development of the CPR Report, and a period of community review was held before the submission of the Report.

The institution conducted a serious inquiry into the questions it raised for itself. While the review may have relied too much on surveys and self-reports for data, it does generally provide evidence to support its conclusions. The Report reveals an institution that is engaged in developing a greater understanding of its capacity in its focal areas. The review also shows a developing capacity for data collection and analysis.

### **C. Response to Previous Commission Issues**

The report of the 1999 Visiting Team included three recommendations. One, the Team recommended “that the College should consider deliberate efforts to broaden student values beyond academic performance and dedication to academic work”; in this vein the team also recommended that “the College consider deliberate intervention in the residential environment to introduce adult role models and supervision.” Two, the Team recommended that “the College accelerate its efforts to address the campus climate for women and underrepresented minorities.” Three, the Team recommended that “the College adopt a policy of routine external reviews of all academic units on campus, encourage all faculty to become familiar with best practices at other institutions, and to experiment and take appropriate risks with promising new educational models.”

The Commission endorsed the Team’s recommendations and reinforced them by highlighting these areas: **Mission and Leadership:** the Commission urged the College to articulate educational objectives that define leadership for Harvey Mudd and to clarify institutional priorities and intended learning outcomes for leadership; **Educational Effectiveness:** the Commission urged the College to conduct program reviews for improvement in curriculum and pedagogy, including external colleagues, and further urged the Harvey Mudd faculty “to explore best practices at other institutions; **Student Development and Campus**

**Climate:** the Commission recommended that “the institution strengthen its resolve to identify appropriate strategies and interventions in the social development of students.”

Harvey Mudd College describes its responses to the Commission’s recommendations in its CPR Report and refers to Appendix 16 of the Institutional Proposal, which includes further information about the College’s responses. The College demonstrates considerable efforts to address the Commission’s concerns in these areas: **Student Culture and Social Development--** The College has added key personnel and diversified its student life programming. It is not clear how or whether the College assesses the effectiveness of these efforts; **Academic Program Review--**The College has established a regular process for academic program review using external colleagues as reviewers. Almost all programs have now been through one review cycle; **Leadership--**The College has introduced an annual, elective course in leadership and instituted an endowed Visiting Professorship in Leadership and Management. It is not clear that the College has articulated educational objectives that define leadership in the context of the College’s ethos and values. **Experimentation, innovation, and educational leadership--**The College has undertaken a number of curricular and pedagogical innovations informed by study of best practices at other institutions, including changes to the Core Curriculum, addition of unrestricted electives in students’ programs, increased opportunities for experiential learning, and increases in education abroad participation. The faculty’s Teaching and Learning Committee provides effective leadership in this area; **Diversity—**This is a principal theme of the College’s self-review and report. The College’s responses on this theme will be discussed in Section II below.

## **SECTION II – EVALUATION OF INSTITUTIONAL CAPACITY**

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**Theme 1: Experiential Learning**

At Harvey Mudd, Experiential Learning (EL) refers to learning by active participation in activities related to the educational program and subsequent professional practice. The CPR Report specifically focuses on the two required capstone experiences: the Clinic program and undergraduate research. The goals of the self-review were (1) to articulate HMC's vision of EL and the benefits of EL for student learning; (2) to improve institutional practices of collecting information about students' EL activities, accomplishments, and attitudes; and (3) to study these data in order to improve EL practices at the College. HMC has made major progress in achieving the first two goals.

The Report is candid in its examination and evaluation of the capstone EL programs. Surveys from current students and alumni indicate that participants in EL perceive a positive effect on learning. The major benefits reported are that (1) students learn how to learn, a major goal of any educational program; (2) students improve skills in collaboration, which are vital to success in modern industrial environments; (3) students apply course-based knowledge to real world problems; and (4) students acquire skills required for productive research careers (1.9).

HMC at present has an impressive capacity to provide experiential learning opportunities appropriate for highly qualified students that it serves. Faculty members report that the College has allocated sufficient resources to support EL activities in all academic departments. Faculty members are clearly committed to the program, and view EL as the defining capstone of the HMC educational experience.

However, the College faces several challenges in sustaining and improving the EL program through systematic learning assessment. In general, effective learning assessment plans define measurable program student learning objectives and outcomes, develop measures and



methods to assess student performance, evaluate student performance against goals, and use the results of assessment to inform pedagogical and curricular innovations. Both the Engineering and Computer Science departments have made substantial progress in developing such plans. The Computer Science, in particular, has taken the first steps towards systematic assessment, including assessment of its capstone EL program, Engineering has conformed to ABET expectations for assessment, and Chemistry has made important first steps, but the other departments are still in early stages.

A limitation of assessment of the capstone experiences, as currently practiced at HMC, is that it relies almost exclusively, with the notable exceptions of the Departments of Engineering and Chemistry, on student surveys, which can be unreliable indicators of student achievement and may not be well aligned with program or institutional learning objectives (1.2, 2.3, 2.7).

The continued success and improvement of the EL program requires an assessment infrastructure to evaluate performance against well-defined learning objectives. Some departments seem to rely on the central administration to develop and implement the assessment system. The College will likely make more progress by developing departmental learning assessment plans to ensure that the assessment of the capstone experiential programs is defined in relation to overall departmental goals. Such an approach is also more likely to foster participation and buy-in from faculty members, which is absolutely necessary for an effective assessment system. *The visiting team recommends that academic departments should move beyond the first steps already taken in developing their learning assessment plans, for example, make clear their data needs and who will be responsible for analysis and decision making (1.2, 2.3, 2.4, 2.6, 2.7, 4.7).*

The Engineering department should be applauded for reflecting current trends in Engineering in its capstone Clinic program. Specifically, the Global Clinic program responds to the growing distribution of engineering projects and manufacturing across national boundaries. Allocating sufficient resources to sustain and grow the Global Clinic will enhance the effectiveness of the EL program and provide HMC graduates with a competitive advantage in their careers.

At HMC, as elsewhere, student demand to participate in experiences like Clinic and undergraduate research are burgeoning. High quality experiential learning requires significant faculty participation. However, some faculty report that supervising Clinic experiences and undergraduate research projects amounts to an uncompensated addition to the nominal workload. At the same time, faculty members face increasing scholarship expectations. Improved assessment practices will also add to faculty workload. *The visiting team recommends that Harvey Mudd College should continue to examine issues about faculty and student workload to promote balance in personal and professional life (2.1, 3.3).*

The EL program is currently funded from several sources including industrial sponsorship and extramural research grants. Industrial sponsorship has declined because of the current economic climate and is unlikely to fully recover when the economy improves because of the globalization of engineering. HMC needs plans to adapt the EL program to this rapidly changing environment.

The mission of HMC is to educate students in the STEM fields who are “well versed” in the humanities and the social sciences so that “they assume leadership in their fields with a clear understanding of the impact of their work on society.” However, surveys indicate that students give the lowest ratings to the non-technical aspects of their EL experience. HMC is uniquely

placed to ensure that its students have organic understanding of the impact of their engineering and scientific work on societal issues by addressing this mission goal more intentionally in the curriculum. *The visiting team recommends that the College should ensure that its capstone experiences make students systematically aware of the impact of engineering, science, and mathematics on societal issues (1.2, 2.3, 2.4, 2.5, 2.6)*

## **Theme 2: Diversity**

The second theme of the self-review—Diversity at Harvey Mudd College—follows from its 2006 strategic plan, which articulates a goal of “unsurpassed excellence and diversity at all levels.” In the CPR, the College addresses three aspects of diversity: (1) access to a MHC education; (2) curriculum and the academic experience at HMC; and (3) creating a sense of place within the HMC community.

HMC’s effort to attract women faculty and students have been quite successful and have revealed synergies between these efforts. Anecdotal evidence suggests that greater gender diversity among students and faculty seems related to improvements in female students’ learning outcomes. Although female faculty members hired within the last five years have not reached tenure, the two- and four-year feedback review process provides evidence that many are on target for success (CFRs 1.2, 3.2).

HMC’s success in gender diversity seems to play a key role in changing the climate for female students and faculty. For example, when members of the visiting team asked a female, underrepresented minority (URM) freshman about her HMC experience she not only responded “I love it here,” she could articulate many aspects of the campus environment that are stimulating and fun. Such an observation is in stark contrast to the WASC report of 10 years.

Improving racial and ethnic diversity, on the other hand, has been slow and less successful, particularly for African-American students. More success has been achieved in recruiting Latino students, but not nearly in proportion to their incidence in the larger population. HMC has undertaken a number of initiatives to reverse this trend, and these efforts are the focus of this section of the report.

A principal concern of the CPR Report is to understand why more URM students do not enroll at HMC. The Report highlights the dearth of URM students in the national applicant pool whose standardized test scores meet the College's admissions standards. In a nutshell, many at the College summarize the challenge as how the College can compete with better known and better resourced institutions for the 300 African American high school seniors who would meet HMC's admissions standards. The CPR Report suggests that a strategy of targeting URM students from the next level below the current SAT score range would be perceived by some as a lowering of HMC's academic standards. This concern, however, was not expressed during on-campus interviews. Students, faculty, administrators, and trustees generally expressed an understanding of the importance of diversity to this learning community. Students went beyond citing the benefit of simple contact with people different from themselves to a more elaborate understanding of the benefits of learning with people from different backgrounds, life experiences, and perspectives.

This general understanding has not yet resulted in a comprehensive strategic action plan to achieve URM student recruitment and retention goals. Various initiatives are focused on support for URM students, such as specific point persons at HMC to whom these students can turn for social and emotional support, and general support structures through the Claremont Consortium central services (2.13). *The visiting team **recommends** that HMC develop innovative*

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*approaches for attracting and retaining underrepresented minority students, faculty, staff, administrators, and Trustees (1.5, 3.2, 3.4).*

Campus leaders might begin by reframing the campus conversation around standardized test scores being the sole measure by which talent and excellence are defined. This may include strategies to help the community understand that the SAT score is but one of several predictors of academic success. Resilience, tenacity, curiosity and high motivation to learn are attributes that may enable many students to overcome the lack of standard preparation for HMC's rigorous environment. Thus, efforts to increase the applicant pool might include these other indicators of potential.

Officials might also look deeper into how the College could increase its URM yield rate. Campus leaders may want to investigate more deeply why admitted URM students choose to go elsewhere. Admissions staff and others expressed a concern that HMC cannot compete effectively to enroll URM students with other highly selective institutions. However, enhanced outreach activities, examination of the efforts of more successful comparison institutions, and, even the employ of consultants might help HMC better understand how their communications and yield strategies could aid in yielding accepted URM students.

The College is to be commended for using several good recruitment practices such as “fly ins” for admitted female and URM students and campus hosting programs. However, these efforts need to be pulled together into a coherent strategy that is assessed regularly with findings used to improve decision making and action strategy. As HMC collects data more systemically, it needs to document why URM students withdraw from the College in order to enhance admissions strategies and improve retention of URM students.

The College has investigated whether the intensity of the HMC curriculum and the clinic, lab and research requirements are deterrents to URM enrollment. This inquiry also focuses on exploring the skills and attitudes URM students need to succeed at HMC as well as the attitudes that majority students may need to change to achieve HMC's goals for diversity.

The CPR Report reviews of national data indicate the College's curriculum is comparable in its demands to its peers with similar missions. Based on the national statistics about URM students' completion of calculus in high school HMC's calculus prerequisite is seen as an obstacle to their enrollment. The College is trying to address this in its revision of the Core curriculum. The revised Core will provide room for more electives and award academic credit for all required experiences, which will benefit all students. Revision of the core is intended to reduce the intensity of the curriculum without sacrificing its essential quality. This move may also make HMC more attractive to students who are somewhat dissimilar to those who are currently being attracted irrespective of gender, race/ethnicity, socio-economic status, etc., which would add to the diversity of the learning community.

It is not clear that these curricular changes will influence the recruitment, retention or the sense of place within the HMC community for URM and female students. The effort to address these issues should be considered within the framework of the College's assessment efforts discussed in the co-curricular areas.

The Office of Institutional Diversity (OID) is to be commended for developing a number of programs to raise the community's level of awareness about the experiences of URM students. These programs are designed for faculty, staff and students and include Multicultural Ally, Faculty Forums and PRISM, to name a few. OID's efforts to create a sense of place are augmented by formal affinity groups for Black, Hispanic, Asian Pacific Islander, women and

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others staffed centrally though the Claremont Consortium structure. The Faculty Forums have resulted in pedagogical changes according to interviews with participating faculty.

Students and faculty members express general satisfaction with their HMC experience. Interviews with faculty and students (some of whom are from minority populations) provided evidence of a collegial environment where they feel supported in their academic endeavors. Although female faculty members were generally happy with their engagement in their academic departments, these sentiments were sometimes countered by faculty and staff who expressed concern about the climate for differences such as gender, race/ethnicity and sexual orientation in the general campus environment.

Some interviewees expressed concern about the superficial nature of the interaction among students of different backgrounds, others about overt discrimination targeted at these populations. Staff members worry that some URM students who choose to fully adopt the “Mudder” identity may fit it at the cost of isolating themselves from their cultural identity communities. Female faculty voiced a similar concern that women students experience pressure to fit into a “man’s world” by accepting sexist remarks and behaviors. Students are socialized to make stereotypical distinctions about the attributes of people living in specific residence hall and students at other campuses. These stereotypes are sometimes pejorative in nature. Such socialization may counteract efforts to learn from diversity and make the environment comfortable for everyone. Fostering an atmosphere where everyone must be a “Mudder” may very well overshadow the very differences that can serve to enhance the learning environment for everyone. Making extraordinary efforts to fit in can stifle students’ healthy emotional growth and identity development as well as affect their academic success. *The Visiting Team*

*recommends that HMC articulate, promote and assess the benefits of a diverse learning community (1.2, 1.5, 2.3, 2.10, 2.13, 4.6).*

These approaches may begin with existing programs but expand to include broader campus dialogue about how the community might derive the benefits of diversity. The Teaching and Learning Committee might consider adding particular readings in their book series that foster faculty's exploration of theories such as *stereotype threat*, which helps explain how expectations they set for students can influence student learning outcomes.

### **Theme 3: Assessment of Student Learning**

Harvey Mudd College (HMC) is to be commended as an institution with a clear and firm commitment to learning and improvement. It has highly qualified and motivated faculty who implement a well-defined and challenging curriculum (2.1, 2.2, 2.5). This is evident from the CPR report, the serious thoughtfulness of ongoing curricular discussions (4.1), and numerous comments by students. The extensive and impressive advising system at HMC also speaks well of the College's commitment to student learning (2.12).

HMC embarked in 2006 on a self-reflective process that resulted in their Strategic Vision document (2.3, 4.1, 4.2). As a result of that process the Strategic Vision Curriculum Committee, based upon a careful comparative analysis, proposed to revise the Core Curriculum (2.8, 4.3, 4.4). Pursuant discussion about assessing the proposed curricular changes and their impact upon student learning led the College to include a third theme in its self-review, Assessment of Student Learning at Harvey Mudd College.

HMC has done a good deal to build assessment capacity as it approaches its upcoming Educational Effectiveness Review. The College has established a regular cycle of departmental program review, which is nearing completion of its first round (2.7). The institution has also



created an Office of Institutional Research and Assessment and appointed an Assistant Vice President to head the office (4.5). The faculty, driven by an assessment of the HMC student experience, have adopted and begun to implement a new Core curriculum (2.4). The faculty have also developed a new writing course for the Core Curriculum. The new writing course contains clear, explicit, and measurable learning objectives (2.3). The assessment plans developed for these curricular changes may be helpful models for the development of program-level assessment.

Assessment has evolved slowly at HMC, but the institution seems recently to have reached a positive tipping point as illustrated by the integral role of assessment in the revised Core Curriculum. Numerous conversations with faculty, trustees, and administrative staff show that they clearly value and understand the role of assessment in advancing student learning (2.7).

The self-review has also helped HMC develop momentum behind assessment. The essay on experiential learning takes some encouraging steps to assess Clinic and undergraduate research programs (2.3, 4.4). For example, the College collected and analyzed data that indicate distinctive learning outcomes for first and second year students completing the summer research experience compared with juniors and seniors. Assessment results like these may help the College better articulate objectives and outcomes for undergraduate research experiences at different levels of development, measure student achievement of those goals and use what they learn to improve student learning. The College is to be commended for its initial efforts to use data to improve the quality of its experiential learning opportunities (4.3, 4.4).

Assessment at the departmental level is a work-in-progress (2.3, 2.4, 2.5, 2.6). The College should clarify what departments are expected to achieve in articulating their assessment plans and provide technical support where needed. Departments should also continue to work

with the Office of Institutional Research and Assessment to align their departmental student learning objectives with the College mission and to map their departmental student learning objectives onto their curricula. Alignment and mapping would be facilitated if the College and its programs adopted a consistent vocabulary to describe the elements of learning assessment plans. *The visiting team **recommends** that the College should develop a more systematic approach to the assessment of student learning that includes among other aspects a consistent language of assessment and an explicit alignment of the College's mission, its curriculum, and institutional and program student learning outcomes (1.2, 2.3, 2.4, 2.6, 2.7, 4.2, 4.4, 4.7).*

Departments should continue to develop their assessment practices and plans. Examination of departmental materials, including program review reports show that several departments need to develop and refine their practices and plans. Reports generated by the departmental program review process suggest that several departments rely too much on indirect measures of student learning. Departments should consider identifying performance indicators to determine what is working well and what may need improvement. This critical part of closing the feedback loop provides a context for focused discussions about assessment results and how pedagogical and curricular change could improve student learning. Department plans should also be clear on operational questions, such as what data will be collected, how it will be evaluated, and who specifically will be responsible for implementing learning assessment plans. *The visiting team reiterates its **recommendation** that academic departments should move beyond the first steps already taken in developing their learning assessment plans, for example, make clear their data needs and who be responsible for analysis and decision making (1.2, 2.3, 2.4, 2.6, 2.7, 4.7).*

Harvey Mudd College has a concise and well-articulated mission that suggests distinctive

and ambitious goals for student learning. The College seeks to graduate students who are “well-versed....in the “humanities and social sciences,” who can flourish in a multicultural community and global environment, and who can lead examined and meaningful lives. The College is to be commended for its commitment to educating the whole person and should extend assessment to other aspects of its programs that promote student development, specifically Student Affairs. The CPR Report notes that the last full evaluation of the Dean of Students Office and its programs occurred more than 15 years ago. *The visiting team recommends that the College should assess the impact of the co-curriculum on student learning (2.11).*

Given the distinctiveness of Harvey Mudd College’s mission as interpreted in the SVCC educational priorities, well-articulated learning assessment programs that focus intentionally on how its students achieve institutional educational goals such as leadership would enable the institution to meaningfully distinguish itself from its competitor schools. As HMC considers what it means to provide a rich liberal arts experience for students focusing in the STEM fields, the use of appropriate, targeted assessment may help the institution to better understand what the liberal arts experience provides students, and how that experience sets them apart from other technology-focused schools (2.8).

While the College collects a lot of data, informed by multiple constituencies and methods and has made progress on assessing formally what had been assessed informally or indirectly, it is apparent, as the Report concedes, that “many of the college’s academic planning processes in the last decade have been ad hoc rather than regular” (2.7). For example, the College participated in the Academic Pathways Study from the Center for the Advancement of Engineering Education and received detailed feedback about HMC and how it in the aggregate compared to other institutions. It is unclear what HMC learned from this study and whether its

results led to improvement for student learning. It is similarly unclear how the College used information from the HEDS Alumni survey in 2008. On the other hand, the College's more systematic response to its own Horizontally Integrated Core Curriculum assessment, which was administered to sophomores in 2005 and found that students reported no change in their collaboration or leadership skills and in their appreciation of diversity, and that students believe their communication skills declined over the first two years, led in a systematic way to the significant changes to the Core Curriculum and, as described above (4.3). In short, Harvey Mudd College should develop consistent systematic and structured approaches that assess the educational effectiveness of curricular and co-curricular programs and use those assessments to inform program review and institutional planning. *The visiting team recommends that Harvey Mudd College should develop a strategic, systematic, and sustained approach to continuous improvement (4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8).* Such an approach would be most effective in enabling the College to leverage the results of authentic assessment for improved student learning.

**Standard One: Defining Institutional Purposes and Ensuring Educational Objectives**

HMC's institutional purpose and character are succinctly captured in its formally approved mission statement: *Harvey Mudd College seeks to educate engineers, scientists, and mathematicians, well versed in all of these areas and in the humanities and the social sciences so that they may assume leadership in their fields with a clear understanding of the impact of their work on society.* Throughout its time on campus and in nearly every one of its interactions the visiting team experienced a clear understanding and acceptance of this mission statement by HMC students, faculty, staff, alumni, and trustees.

The HMC *Faculty Notebook* clearly states HMC's commitment to excellence in teaching as its highest priority for faculty effort and the most important criteria for tenure and promotion. Other official documents communicate a strong commitment to the mission statement in the areas of student life, financial affairs, business services, and Board of Trustees policies (1.1).

Educational goals and objectives at the course, department, and college level clearly reflect this strong commitment to mission. The College assembles extensive data measuring student achievement and attitudes, including individual student course evaluations, departmental statements of learning objectives and measurable outcomes, and institutional participation in national surveys of student opinion. The College is moving toward a more systematic approach to the setting of goals, measuring progress against these goals, assessing the results, and using the conclusions for continual improvement at the course, department, and institutional levels. The commitment to this alignment of practice with mission, via assessment, is affirmed in the institution's *Strategic Vision Goals, Goal Statements for the Core Curriculum (2007)*, and revised *Core Curriculum*, the latter of which emphasizes whole person development and student choice to a greater degree than ever before at HMC (1.2).

HMC maintains a strong system of shared faculty governance, as described in the *Faculty Notebook*, and as carried out by academic department chairs and a set of standing faculty committees. Clear and rigorous procedures provide guidance for the annual evaluation of all faculty and staff; for deeper, biannual reviews of junior, tenure-track faculty; for the review of faculty for promotion and tenure; for the review of senior officers by the president; and for the review of the president by the Board of Trustees. HMC personnel policies are clearly stated on the institution's website, and include a rich set of fringe benefits (1.3).

The institution demonstrates clear and strong evidence of a deep commitment to high ethical standards in all aspects of its operations, including a clear, unqualified commitment to academic freedom for all members of its community (1.4).

HMC has demonstrated a strong commitment to diversity, including an extensive essay in its self-study in preparation for this review. HMC's progress in realizing its commitment to diversity is reviewed above. The administration, faculty, and students embrace the concept of diversity and are committed to real, continuing progress, including support for the Office of Institutional Diversity, the creation of a Strategic Vision Diversity Committee, departmental mentoring programs, local chapters of the Society of Black Engineers and the Society of Professional Hispanic Engineers, etc. The visiting team, however, recommends a deeper, more systematic approach to fully understanding the value of diversity in enriching learning experiences at the College (1.5).

Review of institutional documents and interactions with HMC faculty and staff make clear that HMC holds education as its primary purpose, operates with an appropriate degree of autonomy, represents its academic goals, programs, and services truthfully, and treats students, faculty, and staff equitably through well established and clearly articulated policies and practices. HMC has established and clearly states a strong non-discrimination policy and deals fairly with matters of student conduct, grievances, human subjects in research, and refunds (1.6, 1.7).

HMC demonstrates a high degree of integrity in all aspects of its operations and publishes relevant policies in its *Faculty Notebook*, *Staff Handbook*, and HMC Human Resources Office website. The College maintains a professional and mutually-beneficial relationship with the Accrediting Commission and reports to be in "stringent compliance" with all Commission policies and procedures. The preparation for this review involved virtually the entire campus

community, and the degree of interest and engagement by the community during the site visit was genuine, warm, and enthusiastic (1.8, 1.9).

### **Standard Two: Achieving Educational Objectives through Core Functions**

Important aspects of Standard Two involve the development and implementation of learning assessment plans at various levels (2.3, 2.4, 2.6, 2.7, 2.10, 2.11). These are reviewed above in the discussion of Theme 3: Assessment of Student Learning.

The mission of Harvey Mudd College is grounded in the primacy of teaching and learning. The institution is to be commended for the dedication of faculty, staff, administrators and trustees to the education of the College's students. Faculty proudly take responsibility for a rich and distinctive curriculum integrating a demanding Core, grounding in the Humanities, Social Sciences, and the Arts, mastery of a major program, all capped by exemplary capstone experiential programs. The Curriculum is well-defined and creates a remarkable common sense of purpose across the institution. Recent review and revision of the Core Curriculum demonstrates has been systematic, carefully considered, and well-supported. (2.1, 2.2, 2.4)

The College provides each student three academic advisors to aid students as they move through the three aspects of the curriculum. Faculty generally see themselves as developmental advisors, and not just auditors of degree requirements (2.12). The College is aware of the impact of changes in the Core on advising, especially the need to integrate academic advising in new student orientation programs.

Scholarship and creative activity are valued and, according to faculty members, well supported. The Teaching and Learning Committee provides leadership for pedagogical innovation (2.9).

Two matters of concern under Standard Two involve the co-curriculum and the adequacy of student services (2.11, 2.13). As noted above, Students Affairs has not undergone program review in fifteen years, and the College does not seem to have done any assessment of co-curricular programs. While the College maintains essential student services and has made recent important investments in areas like diversity and student emotional health, the institution has not provided redundancy in various functions with the result that a vacation or unexpected absence may mean that important functions go into temporary suspension. *The visiting team recommends that the College should address the lack of redundancy and also seek optimal use of consortial arrangements to provide better student services (2.13, 3.1).*

**Standard III: Developing and Applying Resources and Organizational Structures to Ensure Sustainability.**

The college meets all the criteria as defined in standard III. However, some areas of particular strength or concern are detailed below.

The 1999 visitation team report cited the College's information technology (IT) environment as "excellent in support of its mission" (3.6, 3.7, 3.8). In the intervening decade IT services did not improve as they should have. An outside review of the IT department commissioned by the College president and conducted in 2007 was highly critical and observed that improving IT services had become "a turn-around situation, [and not just] a 'raise the bar' exercise." Interviews with members of the IT advisory committee and with Computing and Information Services (CIS) department confirmed the need for attention to the technology area. Specific areas of concern are the fractured nature of the software environment (for example, CIS supports four email systems for the college, each requiring its own server setup and support effort), the lack of an integrated Enterprise Resource Planning (ERP) system (an instance where



the consortial arrangement with the Claremont Colleges leads to ‘diseconomies of scale’) and a general dissatisfaction with user services provision.

The College has recognized these problems and is starting to address them. A new chief information officer (CIO) is bringing much needed management expertise and has been given a mandate to do the turn-around. He is starting to work on an IT governance structure that will allow a simplification of the IT infrastructure. He is realigning staffing patterns in CIS in order to improve user services and to re-architect the ‘middleware’ that will allow a more seamless user experience. Also staffing has been increased to help address the problematic user services issue. These are commendable first steps but are only the beginning – interviews suggest that perhaps 10-15% of the work had been done to complete the turnaround. *The visiting team recommends that the College develop a more effective governance structure and decision-making processes for information technology (3.6, 3.7, 3.8).* The team also hopes that the consortium will address as a high priority the acknowledged problems with ‘fractured’ systems and may even consider the adoption of an integrated ERP system.

HMC is in an enviable fiscal position, mostly because of its conservative financial management policies (3.5). The endowment has performed admirably in these very tough economic times (down *only* 17.2% in the last year) and consequently the College has avoided dramatic budget cuts and staff layoffs. The College has not had to reduce its ambitions and continues to make progress on its strategic initiatives, such as the construction of an exciting new teaching and learning center. Faculty and staff have seen and will see raises, albeit more modest ones than in other years. The 1999 report stated that the College was headed to “budget disequilibrium.” This is no longer the case. The College looks comparatively good, even great, on most financial ratio tests and is no longer in any financial danger. Its budgeting policies

are very conservative, which enables strategic use of year-over-year operating surpluses. The College is to be commended for its sound fiscal policies.

The conservative stance on finances has served the HMC well, especially in these tough economic times. However, the College may be leaving some opportunities “on the table.” HMC has not assumed any meaningful debt to date. *The visiting team **recommends** that the institution should give full consideration to potential leveraging of endowment through a prudent increase in debt levels (3.5).* As the College constructs its planned \$42 million teaching and learning center, it may want to consider financing all or part of this building even while it is soliciting donations for this and other building projects. Municipal bond market interest rates are at historic lows while there is a real potential for significant inflation in the not too distant future. Donations invested in the endowment would yield more on average than the debt service requirements for the new building and would work forever to the future benefit of the College.

The College should be commended for professionalizing its alumni relations and advancement organization with the aim of increasing participation, annual fund giving and total giving. A new chief advancement officer was brought in a few years ago. The College is now in the silent phase of an ambitious comprehensive campaign and had an enormously successful start last year with a \$25M lead gift. Alumni participation is at about 32% now and the aim is to bring this up to 50%. Annual giving reached \$4.5M last year, a significant improvement over where annual giving had been before. A new communications strategy is being put in place that will help not only in development but also across the board with branding, better publications and an emphasis on new media.

The financial condition of the college is sound and promising. HMC’s financial strength rating (Moody’s A1) probably understates its actual financial strength and should be revised

upward.

The College should be commended for its plan to upgrade its educational facilities with the construction of a \$42M Teaching and Learning Center to be completed in 2012. The new building will be audio-visual and technology rich, providing a significant improvement to the College's existing teaching and learning facilities. It will "pay homage to, but not be limited by, the existing architectural fabric of the campus" and is slated to be certified LEED platinum – the highest sustainability rating available. Adding this exciting new facility will supplement existing teaching places that subsequently will be renovated or repurposed and be brought more up to date.

Faculty and staff exhibit an extraordinary degree of commitment to the mission of the College (3.1, 3.3, 3.4). Several sources from all levels of the College hierarchy expressed concern that this tremendous dedication can lead to an unbalance between personal and professional life. We encourage an examination of workloads and staffing and consideration of full and optimal use of supplemental resources provided by the consortium.

#### **Standard Four: Creating an Organization Committed to Learning and Improvement**

As with Standard Two discussed above, much of the content of Standard Four overlaps with the discussion of Theme 3: Assessment of Student Learning. This section focuses on issues not touched on above.

HMC is as an institution committed to learning and improvement. In a number of notable examples, the College has used data used to drive some planning and decision-making.

However, *the college should strive to develop a consistent approach to continuous improvement that is strategic, systematic, and sustained approach.* The hiring of the assistant vice president for institutional research and the expanded commitment at all levels to assessment indicate that

the culture of continuous improvement and assessment is taking hold. It is important that the College maintain the momentum that it has established.

Much of the responsibility for progress in this area appears to have been assigned to the relatively new Office of Institutional Research and Assessment. The role of the assistant vice president has been critical in helping the College to systematize, centralize and organize data collection, analysis, and storage and create cycles of assessment that can continually and systematically inform strategic planning and decision-making. However, it is too early to determine the effectiveness and capacity of the office (4.5).

The office has begun to implement “a comprehensive institutional research program,” including annual participation in national studies and help with assessments and evaluations of programs. Given that the charge to this office is large and staffing is small, it would be worthwhile to see a 3-5 year plan for how this office plans to meet its charge, i.e., how they will prioritize the work that needs to be done. For example, some of the faculty believe that assessment of the new Core will lead the priority list for IR&A – is there agreement across campus that this is the priority in the near future?

It is difficult to determine the degree to which planning processes are aligned with the strategic objectives and priorities of the institution (4.2). A table that shows the “master plan” would provide a sense of coherence and alignment – for example, what are the strategic objectives and how do they align with the college’s educational goals, departmental goals and learning outcomes; what data is collected and how; who is responsible to analyze that data; and how will it be used? This type of document would show both the alignment and how the feedback loop is closed. For example, such a chart would indicate how data collected from NSSE, APS, etc., was used to change curriculum, courses, co-curricular programs, etc.

It is unclear why full professors are only required to evaluate their courses at least every third semester, when those evaluations should provide both formative and summative information that dedicated educators should value and use on a continuous basis.

HMC has some processes of quality assurance at every level – a curriculum committee to approve new courses and programs, a process of regular departmental reviews, the collection of a good deal of data (e.g., senior exit interviews, surveys, faculty annual reviews), other information tracked over time (e.g., number of students going on to graduate school), and benchmarking using data from other institutions (4.4). However, it is unclear how the College uses the data in planning and decision-making processes.

The leadership of HMC at all levels appears to be committed to improvement, as indicated by the creation of the Office of Institutional Research and Assessment, a cycle of program reviews, and the variety of committees and initiatives that have developed over the past decade (4.5). As articulated in the CPR Report and in many discussions with members of the community, the College knows that it needs a more coordinated and systematic approach to improvement, and they are clearly moving toward this goal.

### **Student Success**

HMC identifies several common dimensions by which to determine overall student success (e.g., attrition and retention rates, graduation rates, numbers of students attending graduate school). In each of these areas they are either comparable to their peers (attrition and retention) or leading their peers (numbers going to graduate school). The College is also beginning to measure student success in more formal ways, e.g., performance indicators tied to departmental goals and learning outcomes (CFRs 2.3, 2.10, 2.12, 2.13, 4.3, 4.5, 4.5).

HMC's graduation and retention rates are similar to peer institutions, with the exception of Hispanic and Native American students (although it is difficult to interpret data for these groups because their numbers are very small). First to second year retention rates for the entire student population (across all groups) is very strong; HMC is in the upper half of the group per these retention rates, averaging over 95% during the last five years.

HMC's three-year average graduation rate for White/Non-Hispanic is 88% versus 67% for Hispanic/Latino (the lowest among groups), and this disparity is an area of concern for the College. For Black/Non-Hispanic and Hispanic/Latino students, in comparison to 6-year graduation rates of peer institutions, HMC's performance fluctuates, in one year at the high end of the group, and in another year toward the low end. The College does not lose women at a higher rate than men: while the number varies from year to year, over a 6-year period they lost 25 white men and 25 white women students, and 8 Hispanic men and 2 Hispanic women. Again, the numbers for African American students are too low to compare (2.10). (Comment: The visiting team found considerable difficulty in reaching conclusions about these data, as the data are reported in some places in three-year formats and elsewhere over four years. We admit to the potential for discrepancy between our interpretations and those of HMC, although we believe that we have accurately described the general trends.)

HMC clearly articulates its responsibility and commitment "to those students who remain to provide the academic, personal and community support needed to encourage their completion of an HMC education." Students commonly recognize the importance and impressiveness of the support provided through tutoring and the proctor programs, for example, and report that "everyone takes advantage of these people." Furthermore, students frequently commented on the

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collaborative climate that encourages students to work together, help and learn from each other, etc (2.13)

The revision of the Core Curriculum was, in part, undertaken in order to improve the 5-6 year graduation rates and is a good example of how data collection and analysis affected planning and decision-making about student success. Data collected indicated that one reason that many students do not graduate in four years is the heavy course load, which benchmarking indicated was heavier than peer institutions. As a result, HMC has revised the Core; the Core revision was also undertaken to address the rigidity of curriculum that data indicated was hindering students' excitement for learning and affecting student success (4.3).

In terms of students who do not experience success, i.e., those who take leaves or withdraw from HMC, because the numbers are small someone always knows the reasons behind the student's action, e.g., family problems, emotional issues. However, this data is not collected in a systematic way, making it difficult for HMC to do informed analysis across time and student populations. Data should be collected in a more formal and systematic way that would enable informed analysis to determine patterns over time and among groups (2.10, 4.3, 4.4).

HMC does not have a formal reentry process for students returning from leaves of absence to assure their success, which members of the community have identified as problematic and in need of attention.

As a result of changes in the Core, HMC is also reviewing its advising system, which according to the Report is "another important component needed to support and sustain students' academic, personal and co-curricular engagement with the college." Of particular concern is the heavy advising load that the Humanities, Social Science, and Arts faculty carry, and the further burden the new Core will place on this group (2.12).

Finally, in terms of academic success, each department is updating its goals and student learning outcomes and defining appropriate indicators to measure the achievement of these outcomes. This process has only just begun, but movement is evident, faculty support (for the most part) is apparent, and infrastructure is in place to support this process. Furthermore, HMC has created an Inventory of Educational Assessment Indicators, which they admit they have only begun to formalize in the last two years. Consequently, they have not had time to collect and interpret some of the data and implement changes as a result of the findings. But they have positioned themselves to do so by simply having the table that specifies how outcomes have been developed, evidence of their success, the responsible parties and processes for interpreting data, and how the findings are/will be used. Finally, HMC has recently instituted a formalized process of program reviews, and five of the seven academic departments have already completed these reviews. All of these initiatives will enhance HMC's commitment to student success by providing data that can drive continuous planning and improvement (2.3, 2.4, 2.6, 2.7, 4.3, 4.5, 4.6, 4.8)

In summary, HMC has done impressive work in retaining students, in providing a number of mechanisms to help them be successful (e.g., tutors, proctors), and with the ongoing concern for those students who experience difficulty at the college. Furthermore, the team is impressed with the level of success achieved by most students and the continuing support provided to them. The visiting team urges HMC to continue to work on formalizing their processes for collecting and analyzing data to impact planning and decision-making in the area of student success, and believes HMC does have the capacity to do this for both the Educational Effectiveness Review and their own continuous improvement.

### **SECTION III – FINDINGS AND RECOMMENDATIONS**



The visiting team was impressed by the seriousness of Harvey Mudd College's preparations for the CPR visit and the cooperativeness and forthrightness of all of the groups and individuals meeting with the Team during its visit. The Team commends the institution for its achievements in the following areas:

- Harvey Mudd College has developed and implemented a highly rigorous and challenging curriculum combining deep and broad learning with experience in putting knowledge to work in collaborative and creative ways on important problems (2.1, 2.2, 2.4, 2.5, 2.12, 3.11, 4.7).
- Harvey Mudd College is an institution committed to learning and improvement. The deliberative processes leading to the revised core curriculum and the new writing course provide evidence of this commitment. Faculty members generally have embraced assessment of student learning as integral to good teaching practice (1.1, 2.4, 2.8, 2.9, 4.7).
- The College is committed to making experiential learning the foundation of its curriculum and recognizes the need to understand more fully the effectiveness of its capstone experiences (2.1, 2.2, 4.6, 4.7).
- The College has sustained the primacy of its teaching mission (1.1, 2.9, 2.10, 2.12, 3.3, 3.4).
- Harvey Mudd College's talented, hard working and committed faculty give great attention to student learning. Students consistently express their recognition and appreciation of the faculty's dedication to whole student development (2.4, 4.3, 4.6).
- The College has made demonstrable progress in comprehensively addressing the development of the whole student (2.5, 2.8, 2.9, 2.10, 2.13, 3.4).
- Harvey Mudd College has made great progress in gender diversity, realizing as well the need for similar progress in other aspects of diversity in the faculty, staff, student body, and Board of Trustees. In particular, the Offices of Admissions and Financial Aid are making important efforts to increase diversity in the student body, and the Office of Institutional Diversity provides faculty with useful broad-based support that has facilitated pedagogical changes in support of goals for diversity (1.5, 2.9, 2.10, 2.13, 3.2, 3.3, 3.4, 4.7).
- The institution's staff is clearly committed to carrying out the mission of Harvey Mudd, and does so with evident pride in the College (1.1, 3.4).
- The College enjoys visionary and effective presidential and decanal leadership that has recognized and addressed weaknesses in the operations of the institution, making strong appointments to key leadership positions and professionalizing a number of critical functions and services (1.3, 1.8, 2.13, 3.1, 3.4, 3.6, 3.7).
- Sound fiscal policy and management have placed the College in a strong financial position that has enabled it to weather the economic downturn quite impressively (3.5, 3.9).
- The College has made commendable plans to build a new Teaching and Learning Center that reflects the values of the institution's curriculum and the creative potential of its faculty and students (3.5).

Based on its review of materials prepared by Harvey Mudd College in its self-review and its visit to the College, the visiting team makes the following recommendations. These recommendations found in the discussion above are summarized here:

- Harvey Mudd College should develop a strategic, systematic, and sustained approach to continuous improvement and the assessment of student learning that includes, among other aspects, a consistent language of assessment and an explicit alignment of the College's mission, its curriculum, and institutional and program student learning outcomes (1.2, 2.3, 2.4, 2.6, 2.7, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8).
- Academic departments should move beyond the first steps already taken in developing their learning assessment plans, for example, making clear their data needs and who will be responsible for analysis and decision-making (1.2, 2.3, 2.4, 2.6, 2.7, 4.7).
- The College should assess the impact of the co-curriculum on student learning (2.11).
- The College should ensure that its capstone experiences make students systematically aware of the impact of engineering and science on societal issues (1.2, 2.3, 2.4, 2.5, 2.6).
- The institution should give full consideration to potential leveraging of endowment through a prudent increase in debt levels (3.5).
- The College should develop a more effective governance structure and decision-making processes for information technology (3.6, 3.7, 3.8).
- The College should address the lack of redundancy in critical functions in order to better serve students; the College should also seek optimal use of consortial operations to better serve students (2.13, 3.1).
- Harvey Mudd College should comprehensively analyze, articulate, promote and assess the benefits of a diverse learning community (1.2, 1.5, 2.3, 2.10, 2.13, 4.6).
- The College should continue to develop innovative approaches for attracting and retaining under-represented minority students, faculty, staff, administrators, and board trustees (1.5, 3.2, 3.4).
- Harvey Mudd College should continue to examine issues about faculty and student workload to promote balance in personal and professional life (2.1, 3.3).

#### **SECTION IV – PREPARATIONS FOR THE EDUCATIONAL EFFECTIVENESS REVIEW**

Harvey Mudd College has begun work to prepare for its scheduled Educational Effectiveness Review. As reviewed in the discussions above of the College's work in the assessment of student learning and its performance under Standards Two and Four, the College has created capacity to provide evidence of student achievement and established processes for the use of evidence in improving its performance. The discussion above also makes clear that the College

needs to ensure that its approach to educational effectiveness is systematic and sustained, both at the institutional and the program levels.

The College has developed much of the infrastructure needed to complete the Educational Effectiveness Review (EER) in the Office of Institutional Research, the Assessment Committee, the Strategic Vision Core Implementation Committee, the Writing Committee, the Teaching and Learning Committee, and others. However, as noted above, the articulation and implementation of learning assessment plans at the program level is at an early stage. Attention must be focused at the department level so the College will be ready for the EER.

The College should consider refining the focus of its inquiry in preparation for the EER. Regarding experiential learning, it will be important for the College to clarify how the learning objectives and outcomes for its capstone experiential learning programs align with program learning objectives, the educational priorities identified by SVCC, and the mission of the College. In its diversity inquiry, the College should likewise articulate in a more intentional inquiry about how a more diverse community would affect the achievement of student learning objectives and outcomes in the various aspects of the curriculum.

The College will also need to make progress on the use of direct measures of student learning. To date much of the College's assessment work seems to rely on survey data and other measures of student and alumni satisfaction and subjective self-evaluation of learning. These data are useful to a point, but developing more direct measures should provide more valid and reliable information about how student learning is promoted by specific aspects of the curriculum and co-curriculum.

The institution has a good deal of challenging work to do in preparation for its Educational Effectiveness Review. If it maintains the momentum noted throughout this report,

continues to develop its capacity, especially at the department level, clarifies and refines its approach in studying experiential learning and diversity to emphasize learning outcomes aligned with institutional learning priorities, and broadens its data collection to include more direct measures of student learning, Harvey Mudd College should be able to provide evidence of its educational effectiveness at the time of the next stage of its review for reaffirmation of its accreditation.