DAI 2009-2010

Design and Industry Department's Assessment Report, 2009-2010
Submitted by: Ricardo Gomes, Chair
Date submitted: January 28, 2011

**Executive Summary of Design and Industry Department's
Learning Outcomes Assessment, 2009-2010**

Ricardo Gomes, DAI Department Chair

I. Introduction:

The AY 2009-2010 for the DAI department was a year for the implementation and transition of *new degree titles in B.S. in Industrial Design with Concentrations in Product Design & Development; and Industrial Technology; B.S. in Visual Communication Design*

Most former Bachelor of Arts in Industrial Arts student majors with concentrations in Product Design and Development; Visual Communication Design, and the Bachelor of Science in Industrial Technology (BSIT) degree, *upgraded their BAIA degrees to new degree titles.* The Department continues to offer the Bachelor of Arts in Industrial Arts (BAIA) Interdisciplinary degree.

Students currently enrolled in the existing former Bachelor of Arts in Industrial Arts with concentrations in Product Design and Development, and in Visual Communication Design, as well as the Bachelor of Science in Industrial Technology (BSIT) degree, can complete their existing degree program, if they do not want to transfer to the new degree program.

These new undergraduate degrees represent the three (3) primary program directions within the B.S. degree within the Department. These distinct areas of study within the B.S. degree prepare students for careers in product design, industrial technology, and visual communication design industries. Concentration requirements address fundamental design principles, elements, processes and problem-solving methodologies relative to aesthetics, technology, materials, and human factors. Major courses of study employ a broad-based range of applied learning outcomes through the introduction of practical hands-on, computer-based and theoretical interdisciplinary approaches to the study of design, technology and development applications.

The MAIA program is largely an interdisciplinary design program, with emphasizes, or "concentrations" in Product Design and Development; Visual Communication Design; and Design Education.

II. Learning Outcomes for Design + Industry Students, 2009-2010

The DAI Department graduated 118 undergraduate and 12 graduate students in the AY 2009-2010. We received 75 responses to the Undergraduate student Exit surveys (64%) and 11 Graduate student Exit surveys (92%), following completion of the students culminating graduation course. Overall 66% of the students graduating from the DAI Department completed the student Exit survey.

In contrast, there was a 76% DAI Faculty response (99 out of 130) in completing the Student Competency Survey.

III. Undergraduate Program DAI Majors:

The return rate for the number of DAI students who graduated and also filled out the survey DAI generated, is very high (100%) across all degrees in the BAIA (Interdisciplinary/Visual Communications and Product Design and Development). This is reflected in the number of student not now enrolled in DAI 505 Research and Development Lab course.

The data suggests several improvements:

1. DAI's students perceive their educational satisfaction to be rated 'good.' Visual communication students, in particular, felt this way.

IV. Where These Objectives May Be Optimally Evaluated

Three **_Core_** courses provide a backdrop for the larger program:

DAI 300 Design Process	Overall conceptual framework to solve design dilemmas
DAI 370 Colloquium	Career-focused course to identify professional competencies required of each design/technology professional
DAI 505 Research & Development	Students realize individual projects (during their last semester in DAI) which solve a problem they first, identify, then subsequently, solve using marketing and scientific research methodologies.

The **CORE** competencies are supplemented through a set of electives focused on the product design and development/technical specialization.

V. Where Objectives Can Be Ideally Assessed

DAI's culminating senior course offers an ideal forum for evaluating the efficacy of our teaching objectives. During this course students are required to develop a comprehensive research and applied project that must successfully meet the following criteria:

- Identify a problem
- Conceptualize an assortment of potential solutions
- Pursue research methodology which is apt for their problem
- Create rough drafts, use rendering skills, develop models, mock-ups, graphic or physical models and prototypes to test drive the feasibility of their work.
- Explore appropriate methods to realize their solutions.
- Conduct formal presentation and write a formal technical report, which summarizes and analyzes their research and development project.

When faculty and students evaluate the designated level of acquired competencies demonstrated in the student's culminating experience, they are inherently applying the criteria and principles of the DAI Program. The accuracy of their remarks is enhanced and likely to be more accurate, than a retroactive response.

VI.   Assessment Methods

The Faculty Competency Rubric was developed to measure faculty members' perceptions of what students had mastered. (Faculty surveys were completed during the last week of students' enrollment in DAI 505.) A Likert scale ranging from 1 - 5 was used to determine the range of abilities faculty witnessed in that course.

- 5 implies 'excellence'
- 4 implies 'good'
- 3 implies 'satisfactory'
- 2 implies 'needs improvement'
- 1 implies 'needs significant improvement'

DAI also disseminated a student exit survey to students who filed for graduation with their submission of their GAP form. (See Appendix A & B)

NOTE: The students who returned this exit survey are not necessarily the same population evaluated by their teachers.

VII.   Other Assessment Activities

DAI faculty has made an in depth effort this past academic year in compiling data, results and critical summation for the 6th Cycle Academic Program Review. This comprehensive review was comprised of a Self-Study Report, an External Review site visit; an External Review Report; and a pending final evaluation by the Academic Program Review Committee into this academic year 2010-2011.

VIII. An Interpretation of the DAI Undergraduate Majors Data

Faculty rated 118 students during this evaluation cycle. 75 students responded to their exit survey.

DAI students in the former BAIA and newly implemented BSID and BSCVD, were clustered together as one degree in the segmentation of the evaluation of the three (3) respective emphasizes, or concentrations in the: (1) BAIA/Graphic/VisCom: Interdisciplinary Design Studies; Graphics/Visual Communication; (2) BAIA/PDD: Product Design & Development; and (3) BSIT/Industrial Technology. The subset they belong to, is meaningful in that it often creates results in odd combinations of scores. These trends tended to emerge:

1. On average, the majority of Students and Faculty ratings of **Overall Students' Competencies** were evenly matched in the BAIA and BSIT degrees; both students and faculty agreed they had received a 'good' education—a score of 4.0 typified Interdisciplinary; Graphics and Visual Communication Design.

2. Students and faculty ratings of **Overall Students' Competencies** slightly differed in the BAIA/Product Design and Development degree; On average, the majority of Students believe they received a 'good' education—a score of 4.0; while faculty believed on average the majority of students received an 'excellent' education—a score of 5.0

3. Students typically believe they excelled in 'conducting applied research' to their design problems' as well as ' the ability to identify a design problem and to create its solution."

4. Most also believe they are *Good* to *Excellent* at applying design principles.

5. Overall the assessment figures demonstrated that the program is comprehensive and successful from the comparable and consistent viewpoints of both the students and the faculty. There appears to be drastic need to alter outcome results, only continued improvement.

IX. Overall Major Outcomes:

1. It's crucial that, should we continue to cross-validate students' self-perceptions with faculty ratings of student competencies. We should collect at least two faculty members to rate each student. This may be easily achieved by having more than one faculty attend the Final Review. This is already implemented in the Graduate Program, however there is far less students to evaluate at the graduate level.

2. Students rated their perceptions/ satisfactions with their knowledge base most positively across all degrees: (1) Students feel they can apply design principles to a specific design project. (2) They can also identify design problems readily. (3) They can conduct applied research.

3. The facets of the student's education that appeared to be less satisfying were: (1) They are less capable of applying advanced technology to solutions, or (2) solve advanced problems or (3) apply the appropriate production methods to their problems.

4. The lowest ratings occurred around their inability to apply electronic technology to their design projects, only 42% of the students ranked this area highly (4, or above). [BSIT students gave electronics the highest ratings, 66%.] However, this is an area of specialty and emphasis that is being phased out of the program due to program restructuring.

5. Across all degrees, one-third of DAI students report that students demonstrate written and verbal communication skills at a 'fair to poor rating.' We believe that this area of critique will improve with the students that have taken the newly approved DAI GWAR course, DAI 324 Writing and Research for Design. (effective Fall Semester 2009)

6. It is crucial we label our rating system more precisely, so we can interpret our students' evaluations more exactly.

XI. Undergraduate Program

Strategies for Program Improvement

As mentioned in the Introduction, the DAI Department will continue to offer the Bachelor of Arts in Industrial Arts (BAIA) Interdisciplinary degree, however the Department now offers new undergraduate degrees in three (3) primary program directions within the B.S. degree in product design, industrial technology, and visual communication design industries.
 (BS in Visual Communication Design; BS in Industrial Design)

1. The overall and consistent undergraduate majors outcome assessment indicates a well balanced and successful program, which ranks the overall student outcomes in a "good" (4.0 average) level of competency. This may be attributed to a strong Core Prerequisite course requirement (3 courses, 9 units), which must be completed before all majors take the required Core Foundation courses (4 courses, 12 units). These combined Core Foundation of 12 courses and 21 units, provide a consistent, multidisciplinary design foundation skill sets for all DAI students before they engage in their respective design major concentration, emphasis, or degree electives.

2. The Department's cohort BAIA Interdisciplinary Design; BS in Visual Communication Design and BS in Industrial Design degrees ALL share a common 21 unit Core Foundation program.

3. The overall implementation of a structured a Core "pre-requisite" and Core foundation series of courses that will better manage and prepare students for higher-level of learning outcomes on a professional level.

4. Re-establishment of the DAI 470: Portfolio course as a pre-requisite entry requirement before the student enters into their respective major course electives for BS degree programs.

5. Development of a Scoring Rubrics (i.e., holistic rating sheets for student 505 course projects and outcome deliverables)

6. Proposed Curriculum Development revisions in the BSID/Product Design & Development will focus on the consolidation, re-structuring and re-numbering of the required PDD Concentration courses. This will provide an improved complimentary sequences of PDD courses

7. The consolidation and restructuring of the Industrial Technology concentration within the BS in Industrial Design will allow this degree to share similar assessment competencies with the Product Design & Development degree. As such, we will be seeking to reduce the number of competency categories from fourteen (14) to eleven (11). This shared resources and curriculum planning, will provide for the better management and preparation for students course sequencing and path to graduation.

8. The projected curriculum development revisions in the BSID/PDD in regards to the consolidation, re-structuring and re-numbering of courses will compliment a simultaneous course re-structuring and re-numbering of the required BSID/IT courses.

X.   MAIA Graduate Program:

The return rate for the number of DAI MAIA Graduate students who graduated and also filled out the survey DAI generated, was lower (60%), comparative to the undergraduate students.

Assessment of Graduate Student Learning

The focus of the MAIA Program is to develop students' research skills as well as enhance their professional expertise in design education, theory and practice. Seventy-six percent of our graduate students did not major in design as an undergraduate, so students and professionals in career transitions often pursue this degree.

The department has utilized an instrument for faculty to measure the competencies and learning outcomes of students in the MAIA program. After the advancement to candidacy and completion of the thesis or creative work the student's thesis committee chair completes a survey rating each students' competencies and learning outcomes. The department has also developed a similar instrument for students to utilize after their completion of their thesis or creative work and submission of their "Report of Completion." The students are required to complete this self-study Student Exit Questionnaire that addresses the same competencies as found in the chair of the thesis committee evaluation form.

These rubric forms outline and evaluate the following measurable learning outcomes and competencies:

1. Apply Design Principles to a specific design.
   (product, graphic, spatial, and environment, etc.)
2. Apply appropriate materials for design, process and manufacturing.
3. Demonstrate written & verbal communication skills.
4. Present graphic rendering and communication skills.
5. Identify design problem, define design process and create design solutions.

6. Apply appropriate production processes and technology to produce a final product.
7. Apply advanced technology to specific design and development processes.
8. Solve advanced problems in design, technology and industry related areas.
9. Conduct applied research/creative work project to areas of product design, graphic/visual communications, industrial technology and technology education. (See Appendix C & D)

XIII. Graduate Program

Strategies for Program Improvement
MAIA:

1. Use GRE for admission, effective Fall Semester 2011 Admission Applicants (replaces GET). GRE (with a score of 4 or better in the analytical writing component) for incoming admissions.

2. Implementation of a Fall Only Admissions Policy: As of the Fall Semester 2009, the department developed a curricular structure and support services to better support a strong cohort relationship amongst students in the graduate program. This objective has been facilitated by admitting students into the MAIA program only in the Fall Semester. This will ensure that the entering class of graduate students will commence their required core sequence of courses in a manner that will better orient, support and monitor the successful and timely completion of their graduate program coursework. This was done to establish a MAIA cohort amongst the graduate students, and establish a sequence of courses to reinforce a timely graduation and establish a stronger bond amongst the cohort.

3. Implement a full portfolio review of Conditional Status students after the completion of the introductory graduate program course, DAI 700 Introduction to Design Research, and completion of their 12 unit conditional classes. The purpose of this mandatory review will be to assess the student's core graduate-level competency necessary to advance to their subsequent MAIA Program courses.

4. **Evidence of Competent Writing**
   Each graduate student must demonstrate the ability to write American English correctly and effectively. Following university policy, the Design and Industry Department has two levels of assessment.

   Level One: Students must complete a department approved essay examination; students who demonstrate by examination that they need additional work writing American English will be referred to appropriate resources on campus and additional course work in the

English area will be added to their Graduate Approved Program unit total upon consultation and in coordination with the DAI department graduate coordinator. It is the Department's policy that a student must have a comprehensive written proposal approved at the department level within one semester prior to enrolling in either DAI 894, Creative Work Project, or DAI 898, Master's Thesis. As of the Spring Semester 2010, the department has implemented the use of a "Rubric for Evaluating Graduate Writing." This instrument will be utilized in meeting the Graduate Divisions' requirement of evidence of competent writing within the discipline. (See Appendix E)

Level Two: Students can meet this requirement by the successful completion of the written phase of the culminating experience work that is part of either the Creative Work Project (DAI 894), or the Master's Thesis (DAI 898).

5. Seek to develop corporate and professional partnerships that will facilitate the establishment of an internship program for graduate students that could be offered as a DAI 852 Directed Experience project

6. Establish standards and procedures of Graduate Creative Work/Thesis Committee Review Process. A minimum of two full committee meetings per semester (Mid-Term and Final Review). Students will also be required to meet with ALL committee members a minimum of three times. (Preliminary; Mid-Term; and Final Review) This can include designated full-committee review meetings.

7. Establish a uniform standards and procedures for the development and presentation of Creative Work and Thesis projects. Standards for Creative Work projects should facilitate a reasonable level of flexibility in the layout of Creative Work documents. The Creative work documents should be encouraged to reflect a design sensibility that is consistent with the professional qualities of design presentation format, dimensions and layout.

8. Establish a standard Final Creative Work Project Thesis presentation format and procedure that will require full committee representation, with an invited outside guest critic. All Creative Work, or Thesis presentations should be publicized and open to the student body.

9. In regards to **Present graphic rendering:** More emphasis of portfolio & presentation graphic skill development in enhancing the professional quality of the completed work. This may be achieved through the requirement of such skill development courses in the students 12-unit conditional pre-requisite courses

10. In regards to **Apply appropriate production processes and technology to produce final product:** This relatively modest assessment is due in large part that the students are conducting primarily research and analysis methodologies that is within the scope of a limited MAIA timeframe, versus a more in-depth "studio" practicum that may be more indicative of an MFA program of study

11. In regards to **Apply advanced technology to specific design and development processes:** This relatively modest "mid-range" assessment is due the diversity of the students non-design; technology background. The students primarily conduct more analytical research versus technical expertise applications which is within the scope of an MAIA study

12. Graduate students are most satisfied with the knowledge + competencies they acquired.

13. A department policy mandates that ALL faculty graduate committee members complete a MAIA competencies rubric for each student that they sign-off on their Thesis/Creative Work document, along with the Report of Completion of Graduate Work form.

14. ALL MAIA students filing for graduation will also be required to complete the MAIA Student Exit Survey upon submission of their graduation forms