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PROGRESS THROUGH A POSTSECONDARY PROGRAM

Challenge Paper Prepared by
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Challenge question

What interventions are most effective in ensuring that once students enter a postsecondary program, they achieve realistic personal expectations and complete that program in a productive and timely fashion?

The areas of concern that have been identified for students' completion of their postsecondary program are (1) whether students receive adequate assistance in personal development, (2) whether learning outcomes are adequately articulated and the learning environment is rich, and (3) what the incentives and disincentives are for timely completion of a program.

Personal development is a broad concept that includes not only academic but psychosocial development. It depends upon the resources that students bring, as well as those that the postsecondary institution can supply. The learning environment is defined by the policies, procedures, facilities and support systems in the institution, but more specifically by the learning outcomes, instructional guidance and feedback, and student advising provided in programs.

There are two major extrinsic incentives for undergraduate program completion: acceptance into a graduate program and the ability to get a job. The first requires resources in undergraduate academic advising, particularly contact with professors. The second requires career placement resources.

Twenty years of research have shown that student characteristics, particularly their entry qualifications and their engagement, involvement, perseverance or effort, have the greatest effect on their progress (Astin, 1993; Pace, 1982; Pascarella & Terenzini, 1991; Tinto, 1998; Willingham, 1985). I will therefore begin by addressing the implications of this research. I will then examine the context or environment of postsecondary education, and the interactions between student characteristics and the learning environment. Although this challenge paper puts forward issues of quality, it should be prefaced with the recognition that Canadian universities and colleges are in many ways providing a good education. The approach taken in this paper is thus one of improvement through the sharing of best practice.

Student characteristics

Change for undergraduate students during the nineties has been as rapid and widespread as in the late sixties. More entering students report experiencing stress; over the last decade, the percentage of students 'overwhelmed by everything they have to do' has risen from 16% to 29% (Astin, 1998). The postsecondary population has also changed and diversified (Pascarella & Terenzini, 1998). Students bring an increasing range of knowledge and skills to the learning milieu. As well, their stage of development and the transition many students are making from family life to independent living, mean that their personal environment is larger and less stable than before. The majority of students arrive from an educational setting in which the responsibility for learning has been primarily that of their teachers, who have

expressed considerable concern for them and their learning (White et al, 1995). In postsecondary education, there is a shift in the balance of responsibility for learning from teacher to student for which students may not be prepared.

What are students' expectations for learning? Canadian students agree with other stakeholders in postsecondary education that a commitment to learning, the ability to analyze, synthesize, and think critically, and general academic preparedness are the most important criteria for student quality (Donald & Denison, 1996) (Table 1). Some differences exist among students in different programs: engineering students consider mathematical competency more important, and education students attach greater importance to breadth of life experience and a sense of responsibility. Arts students attach less importance to clarity of educational and career goals, a sense of responsibility, and the ability to get a job, which suggests that they may need different institutional or program resources to help them, for example, become independent learners or make career choices on the way to completing their programs.

More critical to the challenge question, students consider almost all of the criteria for student quality (24/25) to be of greater importance while pursuing a degree than at entry to university, and most criteria (18) are more important upon graduation than while pursuing a degree. Students think of these abilities and attitudes, including academic preparedness, as being developed, more than as resources they bring to their postsecondary education. Students not unexpectedly consider expertise at the end of a program, the ability to get a job, and performance on the job to be extremely important only upon graduation, but they also consider criteria central to their success throughout their studies -- a sense of responsibility and the ability to analyze, synthesize, and think critically -- extremely important only upon graduation.

Our studies of student learning have shown that many postsecondary students do not conceptualize learning in a way that will aid them to develop these abilities (Donald, 1992b, 1994, 1995b). Instead, adopting a consumer orientation, these students think of learning as adding to their store of factual knowledge and therefore requiring a minimal commitment to learning, rather than as searching for meaning. Even when students exhibit a high general commitment to learning, they may lack the necessary strategies to be successful in their studies (Donald, 1995b). The term self-regulated learning has been coined to describe students' active control of learning resources (time, study space, peers and faculty members), motivation, and strategies (Pintrich, 1995).

Students, however, when asked about the strategies they use, place greatest emphasis on relatively mundane strategies such as carrying out assignments or attending class regularly (Donald & McMillan-Davey, 1998) (Table 2). More problematic, although they see the ideal student as seeking opportunities to meet with teachers, they subscribe to this strategy least of all, more disagreeing than agreeing with it as a characteristic of themselves.

These research findings raise several issues. First, students enter postsecondary education with high expectations for their learning and development, but with limited understanding of the challenges they face. Second, they do not consider their preparation for postsecondary education to be as important as what occurs during their

experience and as outcomes of their experience, thus signaling an externalization of responsibility for learning. Third, they distinguish between themselves and the ideal student, and may not adopt strategies that are crucial to their success. In brief, students may need more guidance than has been recognized in preparing for and executing their scholarly lives.

The learning environment

The postsecondary learning context differs substantially from that of education at earlier levels (Donald, 1998). To begin with, the learning environment in postsecondary learning situations is not the classroom but the entire campus. Students may spend as little as 15 hours per week in classrooms, and the classroom setting may vary radically from large lecture hall to seminar room; other venues such as the library, laboratory, cafeteria or the student's own room are part of a diverse environment. In addition, a policy of mass higher education over the past 30 years has led in many postsecondary institutions to large classes and limited attention to individual learners. Institutional size has clear negative effects on student development, satisfaction, and the perception that faculty care about them (Astin, 1993). Finally, administrators, responding to a decade of budget cuts, have had time and attention diverted from program design and improvement.

The need to establish dialogue at course, program and institutional levels on the nature of the learning community is the central issue. On the one hand, the institution needs to communicate to students that the largest contributor to learning gains is the quality of effort they put into their work (Pace, 1982); on the other, interventions are needed at three levels -- within courses, within programs, and across the institution, to help students learn. The primary measurement tool for these practices is a checklist and justification for use or non use.

More specific measures would be ratings of success or frequency of use of each intervention. The closer the intervention to the actual learning situation, the greater the effect on student progress (Pascarella & Terenzini, 1991). We therefore begin by examining practices that help students learn in courses.

Interventions that help students learn in courses

To render the learning context manageable and supportive for students, these strategies for providing intellectual context and for instructional planning and evaluation are directed primarily to professors, but programs also need to engage in dialogue on their implementation (Table 3).

The provision of intellectual context

Understanding the institutional context Students need a sense of the history and organization of their college or university and the program they have elected. Potentially provided in orientation sessions, by word of mouth, or by home pages, students still need to know where they fit in. Undergraduate students, for example, need explanations about how they can actively participate in campus governance.

Involvement and integration into the academic community have major effects on the achievement of students (Pascarella & Terenzini, 1991). Professors are the front line in supplying this context.

Explaining educational goals

In order for students to actively control and organize their learning, they need to see the relationship between understanding their field and gaining credentials in it. One approach is to begin a course by explaining the process of scholarly inquiry, how it governs the lives of academics, and how students can engage in this process. The Encyclopedia of Higher Education (Clark & Neave, 1992) gives a multifaceted introduction to the academic world.

Understanding students

Research on student intellectual development provides help in understanding the struggles that students face as their conception of knowledge changes from one of absolute values to a contextual approach to knowing (Baxter-Magolda, 1992; Perry, 1970, 1981). Research on individual differences explains the varied performance levels in a class, leading to increased empathy for students (Moore, 1994). Recommended strategy is to take into account students' level of intellectual evolution, then promote that evolution so that students become contextual knowers, integrating their own and others' ideas.

Providing the disciplinary context

Disciplines have traditionally provided homes within the larger learning community because they determine the discourse: the domain or parameters of knowledge, the theoretical or conceptual structures and the mode of inquiry that guide learning (Donald, 1995a; 1997).

Learning goals vary across disciplinary areas. For example, physical scientists emphasize facts, principles and problem solving, while in the social sciences and humanities, a critical perspective and communication skills are important (Stark, Shaw & Lowther, 1989). The traditions of a discipline serve as harbors for those who are learning to sail.

Providing a learning community

The learning community embodies a concept of relatedness among learners; it is collaborative and consistent with the fact that the student learning environment is much broader than an individual course. Creating study groups or research teams that allow students to collaborate on specific projects in courses or programs is singularly successful as a learning experience. Regular office hours, email contact, and a required meeting with students early in the term promote the concept that students should know their professors.

Establishing student responsibility for learning

Methods for helping students to become responsible for their learning include providing choice among alternative courses of action, challenge in the form of moderately difficult tasks, and collaboration, which encourages further exploration, provides models, benchmarks or standards for students' learning, and promotes persistence because there is an obligation to peers in the group (Clifford, 1991; Davis & Murrell, 1993; Pintrich & DeGroot, 1990).

Instructional planning and evaluation

The instructional dimension that has the highest correlation with student learning is teacher preparation or course organization (Feldman, 1989; 1996).

Designing effective instruction begins with determining the kind of learning desired. Higher order learning outcomes, that is, course goals that go beyond gaining factual knowledge, include learning fundamental principles, generalizations or theories, learning to apply course material to improve rational thinking, problem solving, and decision making, developing creative capacities, gaining a broader understanding and appreciation of intellectual-cultural activity, developing skill in expressing oneself orally and in writing, and discovering the implications of course material for understanding oneself (Cashin and Downey, 1995).

Representing knowledge

Representing concepts to students in a manner that they can understand so that they can incorporate them into their own cognitive structure is a process of depiction or portrayal. Experiential and image-arousing materials aid learning and retention, hence multiple modes of representation are important. Building a bridge between the teacher's comprehension and that desired for students recognizes the link between instruction and cognitive functioning (Shulman, 1987).

Selecting teaching strategies

Learning outcomes provide direction for the instructional strategy. If the learning outcome is gaining factual knowledge or learning fundamental principles, lectures and reading may be efficient methods to use. If the outcomes are learning to problem solve, or developing skill in expressing oneself orally and in writing, other methods that require students to actively manipulate the concepts or principles are needed (McKeachie et al, 1986). Methods of active learning range from team-building strategies and on the spot learning assessment strategies to modified lectures, class discussions, peer teaching and independent learning. The new media allow students to use a variety of information sources to explore and then build their own conceptual frameworks. The role of faculty then changes from knowledge provider to designer of learning methods and environments.

Adapting to student characteristics

To create a positive learning environment, adaptation at the most fundamental level means ensuring that examples are gender and ethnic inclusive. At a more general

level, flexibility of approach to the variety of learners in a class is critical in order to get students' attention and aid them to become independent learners. Insight into where students are having trouble learning requires specific strategies. One minute papers in which students say what they are most puzzled about, or would like clarification on, or what needs further discussion, are used increasingly to provide this kind of feedback. Tutorials, question periods, and frequent brief tests also supply information about the extent of students' understanding and the opportunity to tailor answers to specific student needs.

Instructing

Literature on instruction, particularly that emphasizing active learning (Silberman, 1995) focuses on methods that enable students to evolve in their intellectual functioning, including providing students with a guiding analogy for learning, then modeling the strategies students need to utilize in order to understand and assess their own thinking. One approach is to use methods that reduce the effect of large class size, since larger classes inhibit learning (Gardiner, 1994). Individualized learning, mastery learning, and cooperative or collaborative learning all contribute to gains in student intellectual development.

Assessing learning

The assessment process in courses and programs has a major effect on the way students approach learning. In its worst guise, it tells students what they do not have to learn, especially if evaluation methods test low level learning outcomes. In its best guise, assessment is the process of evaluating student learning to improve learning, instruction, and program effectiveness (see Angelo and Cross, 1994). Student self assessment is a strategy for developing skills of self reflection, and helping students to build active and meaningful relationships with the material they are studying (Kusniac & Finley, 1993). Students identify questions that emerge for them from previous experience, become conscious of themselves as learners, and then connect more actively with the learning context.

Interventions that help students learn within programs

Benchmark or best practices from Improving the environment for learning (Donald, 1997) provide potential directions for programs to improve student learning.

Program planning

Engage faculty in planning the program, setting reasonable annual goals for program review and integration. Assess students' entry level abilities and attitudes early to provide baseline data and to ensure that students have the prerequisite skills. Develop an abilities-based curriculum. Begin by asking what students should be able to do intellectually in the program, then decide how to best go about facilitating or fostering that development, by determining the learning outcomes of courses in the program and the methods of evaluation employed, and how these promote higher order learning. Where possible, create work-study programs that allow students to integrate their

learning. Examine the effect of individual courses or groups of courses on the development of specific types of cognitive abilities using course grades and other outcome measures. Do follow-up studies of retention and achievement to measure student progress and when changes occur.

Establish and support a community of learners

Include colleagues and students, and provide students at entry to their studies with insight about their discipline and about the nature of learning at university. Co-registration or block scheduling enables students to take classes together; courses connected by an organizing theme provide coherent interdisciplinary or cross-subject learning (Tinto, 1998). Colloquia, in which members of a program talk about their research, and brown bag lunches, in which professors and students debate important issues, provide a dynamic center to learning. Allow individual faculty to set goals within the program framework that are meaningful to them.

Establish student opportunities for development

Aid students to set academic goals and to be self regulated. Make the expected outcomes for the program available to students. Specify requirements clearly. Include estimates of the range of time needed to acquire the knowledge and skills in the program. Provide small group learning experiences -- tutorials, undergraduate research, collaborative learning. Incorporate ongoing self assessment of learning into the program, including annual progress reports from students.

Ensure an advising system that works

Reward faculty for effective advising. Advising with an open door policy, email addresses, and regular office hours lets students know they can approach professors. Specify the expectations for advising, and ensure a means of responding to students' needs for recommendations for graduate school or jobs.

Institutional interventions that help students learn

Policy initiatives Involve the entire community in the process of improving instruction -- administrators, faculty, staff and students; make students and their learning experiences the focal point in university organization, policy and practice. Examine entrenched ideas about learning and teaching and attempt to change attitudes to embrace a philosophy of intellectual development through active learning. Reward programs for paying more attention to students, and for more frequent student-faculty interaction, where mentor relationships are established. Recognize time and other costs for planning, evaluation, and intensive experiential programs.

Campus wide programs to aid student integration and learning

Develop specific courses and programs to introduce students to the university, for example, first year seminars, and gateway programs so that professors teaching first year students have a reference group across disciplines. Engage professors as faculty

fellows who are available to students across the campus as general advisors. Provide development time, resources and inservice preparation for faculty to explore new media and technologies.

Honor teaching and learning

Ensure that administrators know they are responsible for effective teaching practice and begin a dialogue about how teaching practice will be improved. Promotion and tenure criteria and annual reporting mechanisms should require evidence of effective teaching. In orientation sessions for new faculty, include dialogue about teaching and learning. Establish teaching improvement awards to assist faculty in redesigning or designing new courses.

Teaching and learning centers

Resource centers that introduce new developments in postsecondary education to the university require some physical resources but also high level human resources. A collection of articles, books and videotapes enables people to explore literature from one discipline to another. Faculty development workshops provide a cross-disciplinary meeting place for a range of topics such as thinking skills, student responsibility, or the use of multi-media. Establish a program for teacher assistant training that is responsive to the variety of needs across disciplines but that also attends to general issues such as the first class.

Teaching evaluations

The focus of teaching evaluations should be on providing programs with information about standards for practice, whether they are being met, and factors that may affect teaching and learning in courses and in programs. Their administration must be carefully attended to and they must be shown to be valid and useful.

One negative effect of teaching evaluations in the last 20 years has been the increasing assignment of responsibility for student learning to instructors with an accompanying loss of responsibility on the part of students. Teaching questionnaires should include items that ensure students understand their responsibilities as learners. Items may establish student preparation, motivation and self regulating strategies. Formative assessments of teaching are more helpful in providing information about where improvement is needed; examples are diagnostic midterm questionnaires, class directed periodic evaluations, or peer evaluation techniques such as the use of a consulting faculty member who works with students in small groups.

Among all of the interventions discussed in this paper, those with the greatest potential to make a difference are the ones closest to the actual learning situation. Providing intellectual context and instructional planning are primarily the responsibility of professors, but programs also need to engage in dialogue on their implementation.

At the institutional level, definition as a learning community is consistent with the fact that the student learning environment is much broader than an individual course, and

should provide the impetus for collaboration. The greatest gap, however, between the present situation and the optimum, is in program planning. Much more needs to be done to assess students' entry level abilities and attitudes, to develop an abilities-based curriculum that fosters intellectual development, and to determine the learning outcomes of courses and of each program, then to explain to students how their program is organized and what their responsibility for learning is.

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Table 1. Ratings given by Canadian students (n=402) to criteria for student quality (from Donald & Denison, 1996)

Criterion	Overall rating ¹	More important while pursuing a degree	More important upon graduation
General academic preparedness	4.2	*	
Secondary school preparation	3.1		
Preparedness for a specific program	3.7	*	*
Breadth of life experience	3.6	*	*
Basic communication skills	4.0	*	*
Basic mathematical competency	3.5	*	
Intelligence	4.0	*	*
Commitment to learning	4.3	*	
Clarity of student's educational and career goals	3.6	*	*
Competence in second language	3.1	*	*
Sense of responsibility	4.1	*	**
Openness and flexibility	3.9	*	*
Independence in learning	4.1	*	*
Ability to analyze, synthesize, and think critically	4.2	*	**
Ability to interact with others	3.9	*	*
Effective study skills and habits	4.0	*	
Moral and ethical reasoning	3.7	*	*
Personal student development	3.7	*	
Self-confidence	4.1	*	*
Academic performance/achievement in courses	4.0	*	
Completion of program requirements	4.2	*	*
Expertise at end of program	3.9	*	**
Ability to get a job	3.7	*	**
Performance on the job	3.9	*	**
Commitment to lifelong learning	4.0	*	*

¹ Scale of 1 for not at all important, 2 for somewhat important, 3 for important, 4 for quite important and 5 for extremely important

** = extremely important

Table 2. Learning strategies ascribed to the ideal student and first year students in seminars and in comparison with students in large courses (from Donald & McMillan-Davey, 1998)

CHARACTERISTIC	Students in First Year Seminars n=80				Sig of Diff.	Students in Large Courses n=80		Sig of Diff
	Ideal Student M	SD	Self as Student M	SD		Self as Student M	SD	
Completes assignments on time and with high quality of effort	4.68'	.59	4.08	.67	.000	4.13	.77	nsd
Carries out all assignments given by teachers	4.64	.66	4.22	.73	.000	4.26	.85	nsd
* Applies previous learning to new material	4.64	.64	4.01	.75	.000	4.21	.71	.09
* Questions and analyzes studied material	4.63	.62	3.85	.76	.000	3.85	.64	nsd
Persistent with studies.	4.61	.65	3.83	.73	.000	3.96	.68	nsd
Manages stress effectively.	4.60	.70	3.61	1.08	.000	3.38	.94	nsd
Adjusts to the amount of academic work to be done	4.57	.65	3.94	.76	.000	3.82	.71	nsd
Manages time effectively.	4.55	.79	3.43	1.05	.000	3.59	.85	nsd
* Meets the intellectual demands of courses	4.52	.62	3.95	.70	.000	3.86	.72	nsd
* Participates as a constructive and active member of class	4.50	.75	3.68	.95	.000	3.39	.92	.05
Attends class on a regular and punctual basis.	4.49	.83	4.20	.88	.010	4.11	.86	nsd
Does well on tests and assignments.	4.46	.80	3.75	.71	.000	3.86	.61	nsd
Adjusts to the ways in which courses are taught.	4.45	.73	3.91	.75	.000	3.65	.70	.02
Takes good notes in class.	4.44	.78	3.66	.98	.000	3.78	1.01	nsd
Works steadily and systematically.	4.41	.82	3.49	.91	.000	3.65	.87	nsd
Pursues challenging courses as an investment in the future.	4.38	.85	3.83	.92	.000	3.79	.88	nsd
* Differentiates between important and unimportant material.	4.30	.82	3.89	.84	.000	3.87	.69	nsd
Seeks opportunities to meet with teachers outside of class.	4.00	.91	2.91	1.02	.000	2.86	.98	nsd

* active, critical participation

*Likert scale: 1 for strongly disagree, 2 for disagree, 3 for neutral, 4 for agree, and 5 for strongly agree

Table 3. Interventions that help students learn in courses (from Donald, 1998)

<u>Provision of intellectual context</u>	
Understanding the institutional context	Clarify institutional and faculty educational objectives, governance and financing, and the character of the community and culture
Explaining educational goals	Explain educational goals, purposes and values and their epistemological grounds
Understanding students	Obtain information on students' language, culture, motivation, gender, age, ability, interests
Providing the disciplinary context	Provide an overview of the discipline - the way in which the subject matter is organized, and the methods used to validate this knowledge
Providing a learning community	Instill the sense of importance of scholarly learning, provide personal, collaborative contact
Establishing student responsibility for learning	Explain to students that their learning will depend primarily upon the quality of effort they put into their work
<u>Instructional planning and evaluation</u>	
Designing	Critical interpretation of knowledge base, structuring and segmenting of concepts, topics, skills to be learned, organized into learning outcomes
Representing knowledge	Alternative ways to represent concepts and skills in analogies, metaphors, explanations, examples, demonstrations, assignments
Selecting teaching strategies	Organize, manage, arrange learning activities to achieve outcomes
Adapting to student characteristics	Respond to student conceptions, misconceptions, aptitudes, attention, motivation and stage of development
Instructing	Management, presentation, interaction, coaching
Assessing learning	Testing for student understanding and competence during instruction followed by a critical analysis of the instructor's and the students' performance
