THE ASSESSMENT OF DOCTORAL EDUCATION

Emerging Criteria and New Models for Improving Outcomes

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USING AN ALIGNMENT MODEL AS A FRAMEWORK IN THE ASSESSMENT OF DOCTORAL PROGRAMS

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How often have we asked questions and gathered information about the sequencing, content, or number of courses in a doctoral program to determine how we might adjust course work to improve doctoral students' learning? When is the last time we sought improvement-based input from our current students and faculty/staff about the process and use of exams in our doctoral programs? What approaches have we used most successfully, not only to evaluate students' individual dissertations but also to provide students with ongoing professional development during the dissertation stage? How can the roles that faculty/staff serve during various phases of students' doctoral programs be improved to help students achieve the outcomes that have been identified for their programs?

Addressing such questions is essential for improving programs in doctoral education. Yet, these are the kind of questions that those of us involved in doctoral education have not been examining adequately in our assessment efforts. Although we have compiled data about doctoral student progression in terms of time to degree and completion rates, we have not yet developed thorough assessment processes for improving our doctoral programs while students are enrolled in them.

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In the meantime, doctoral educators continue to struggle with challenges related to retention, attrition, and the loss of some of the best students, including underrepresented minority students (Antony & Taylor, 2004; Denecke & Frasier, 2005; Golde, 1996, 1998; Lovitts, 2001, 2004; Nerad & Miller, 1996); student dissatisfaction with various parts of the doctoral education process (Wulff, Austin, Nyquist, & Sprague, 2004); insufficient mentoring and lack of systematic, developmental preparation for future roles (Aanerud, Homer, Nerad, & Cerny, 2006, chapter 4 in this volume; Wulff et al., 2004); and often a mismatch between what students are prepared to do at various stages of their doctoral education and what they actually do in their careers (Aanerud et al., 2006; Gaff, Pruitt-Logan, & Weibl, 2000; Golde & Dore, 2001; Wulff et al., 2004).

To help in addressing such challenges in doctoral education, we present in this chapter a particular framework for successful doctoral programs and discuss implications of that framework for program assessment. Our framework, which we call an alignment model, suggests that successful doctoral programs involve a process of aligning program activities, students, and faculty/staff in their specific contexts in order to achieve desired outcomes of helping students complete the degree in a reasonable time, with a satisfactory experience, and with the knowledge and skills necessary for a range of careers.

Because our beliefs about assessment are thoroughly grounded in the alignment model for successful doctoral programs, we begin the chapter by discussing the model—first what the basic components of doctoral education in the model are and then how alignment of these basic components can contribute to improving doctoral programs. Once we present our alignment model for doctoral programs, we explain why formative assessment—an improvement-based, internally centered, ongoing assessment process—is essential in the model. We do so by identifying basic premises related to alignment and by explaining the importance of formative assessment for addressing each of the premises. We conclude the chapter with sample questions and approaches that illustrate the application of formative assessment within the alignment model.

The Basic Components—What Are the Basic Components in Our Model of a Successful Doctoral Program?

The basic components in our model of a successful doctoral program include:

1. program activities
2. students
3. faculty and staff
4. desired outcomes
5. the context

Each of these components is an essential consideration in the success of doctoral programs.

Component 1: Program Activities

Program activities in doctoral education consist of both the formal curriculum and the various activities of a doctoral program purposely designed to prepare students as intellectuals with the knowledge and skills appropriate for careers in their fields or disciplines. With the support of faculty/staff, students proceed sequentially through program activities, such as orientation, course work, laboratory research, fieldwork, examinations, internships/assistantships, and the dissertation (e.g., Baird, 1972; Isaac, Quinlan, & Walker, 1992; Nyquist, Abbott, & Wulff, 1989; Nyquist & Wulff, 1996). Various scholars have identified phases of progress as doctoral students work their way through these program activities (Golde, 1996; Nerad & Cerny, 1993; Nyquist & Sprague, 1998; Nyquist & Wulff, 1996; Sprague & Nyquist, 1989). For our purposes in this chapter, we use three distinct phases in these doctoral program activities.

Phase I

In the first phase, students' activities include participating in orientations, taking courses, reading books, and acquiring appropriate research skills, often by performing supporting research tasks. In moving through these activities, students are primarily dependent knowledge consumers, or, as Sprague and Nyquist (1989) suggest, "senior learners." The faculty/staff in this phase serve as sources of information. Working in rather structured learning environments, the faculty/staff engage with students in the initial series of activities designed to ensure the learning of appropriate knowledge.

Phase II

In the second phase, students take exams to demonstrate the mastery of the literature, concepts, and methods they need in their disciplines. Through the exam activities, students move into a period of transition in which they pre-

pare to demonstrate their expertise as knowledge consumers. At the same time, they assume a new level of independence as scholars, or what Sprague and Nyquist (1989) call "colleagues in training." In this phase, faculty/staff continue to support the students but become more collegial in encouraging the students to be increasingly independent in taking responsibility for their learning and for their ability to demonstrate it.

Phase III

In the third phase of their programs, students undertake their own research for their dissertations or theses and design approaches for producing knowledge in addition to consuming knowledge. As knowledge producers, or what Sprague and Nyquist (1989) call "junior colleagues," the students have responsibility for understanding original research and conducting studies that advance thinking in their fields. During this less structured phase, faculty ideally become senior peers in increasingly collegial relationships with the students.

During each of these three major phases, the programmatic activities are different; the students are undergoing changes in their own development as they respond to faculty expectations; faculty/staff are playing changing roles in their support of doctoral students; and various factors in the departmental, institutional, and national/international contexts for doctoral education are continually changing and evolving. These changing dynamics contribute to a process of socialization during which students learn the language, norms, culture, and expectations of their specific fields (e.g., Antony, 2002; Antony & Taylor, 2004; Austin, 2002a, 2002b; Boyle & Boice, 1998; Ellis, 2001; Golde, 1998; Staton & Darling, 1989; Tinto 1997; Turner & Thompson, 1993; Weidman & Stein, 2003; Weidman, Twale, & Stein, 2001).

This component of doctoral education, consisting of programmatic activities sequenced in three phases that gradually socialize students, is significant because it suggests that doctoral education is an evolving process that includes changing activities and varied roles for the participants. It emphasizes the complexity of the doctoral experience for all involved and reinforces the need for assessment approaches that can help to determine how to make such a complex process successful.

Component 2: Students

Students, including doctoral students enrolled part-time or full-time in on-campus or off-campus programs, represent the second basic component of

doctoral education. Increasingly, students themselves have been included as an essential component in thinking about the quality of doctoral programs. Although in the past the National Research Council used primarily the scholarly reputation of the faculty as an indicator of doctoral program quality (Goldberger, Maher, & Flattau, 1995), the council's Committee to Examine the Methodology for the Assessment of Research-Doctorate Programs recently recommended that students be included (Ostriker & Kuh, 2003). Others have supported this need to include students in program assessment, suggesting that "the quality of an academic program can be judged by the quality of its students" (Haworth & Conrad, 1996, p. 46).

It is especially important to include students because of the changes that are taking place in the graduate population. Scholars have noted, for instance, the changing student demographics resulting from increasing numbers of women and students of color pursuing Ph.D.s (e.g., Austin, 2002b; Berg & Ferber, 1983; Ellis, 2001; Isaac, Pruitt-Logan, & Upcraft, 1995; Maher, Ford, & Thompson, 2004; Nerad & Cerny, 1999; Nerad, June, & Miller, 1997; Syverson, 1996; Turner & Thompson, 1993). Along with these trends have come idiosyncratic and changing needs, expectations, goals, and perceptions of careers and potential jobs in certain disciplines (Golde & Dore, 2001, 2004; Nerad, Aanerud, & Cerny, 2004; Syverson, 1996; Wulff, Austin, Nyquist, & Sprague, 2004). Often the goals of students are very different from the goals and intentions with which they are being prepared (Wulff et al., 2004). In some cases, the students may not be expressing those goals openly to advisors and mentors with whom they are interacting most closely, thus creating challenges for faculty/staff who work closely with students in the socialization process during the three phases of doctoral education.

Given this variety of student-related factors that affect the success of doctoral programs, we have included students as one of the most basic components in doctoral programs. It is important that we capitalize on the varied backgrounds of students and seek ways to make their personal goals and expectations more explicit and open to discussion and negotiation. To do so, we need assessment approaches that can help us to understand students' diverse backgrounds and changing perspectives and determine how that information can be balanced against the needs, expectations, and goals of institutions and faculty/staff to improve our doctoral programs.

Component 3: Faculty and Staff

The third major component of doctoral programs consists of faculty and staff. In our model, the faculty/staff component, first of all, consists of graduate faculty responsible for designing a doctoral program, teaching in classrooms or laboratories, advising, supervising students in their research, and overseeing service experiences. In addition, we include among our faculty/staff any nonfaculty and professional staff who serve as administrators and function in other support roles. Such administrative members are knowledgeable about difficulties doctoral students encounter, often advise them, and serve as key sources of information for students (Nerad & Cerny, 1993).

Faculty/staff always have been key figures in graduate students' success, and, as our model for doctoral programs suggests, faculty/staff are significant, especially because of their changing roles as students move through various phases of the program activities in doctoral education. Specifically, the faculty/staff begin in teaching and advising roles and gradually guide students in formulating research ideas with concrete research questions. In the process, faculty/staff ultimately focus less on being knowledge experts and more on enabling students' independence.

Just as the demographic characteristics of our contemporary students are changing, so are the characteristics for faculty (Finkelstein & Schuster, 2001; Gappa, Austin, & Trice, 2005). Finkelstein and Schuster (2001) point out, for example, that the native-born white men who traditionally were the core of the profession now represent less than one-half of the new faculty cohort (p. 4). Increasingly, then, we are working with a more diverse faculty, and with that diversity has come a greater range of expectations and roles (Gappa et al., 2005). These diverse faculty not only bring new goals and expectations based on their awareness of societal needs but also have to balance those against some of the more traditional expectations that have been an ongoing part of doctoral education.

Adapting to this change of expectations and roles is not always easy for faculty members in doctoral programs, as such adaptation requires an array of approaches for interacting with students who also have diverse needs and expectations as they move through the phases of their education. At the same time faculty members are adjusting to changing advisory roles, they are also at various stages of thinking about and embracing changes that are emerging in doctoral education. Although some are acutely aware of the need to make

adaptations, for example, preparing students for varied roles beyond the professoriate, others are concerned about changes that appear to challenge the rigor and research orientation of the traditional doctoral education as a research degree. Those concerns, then, are manifested in their approaches to doctoral education. As one example, faculty members in some disciplines still do not accept that there is a widening range of career paths for contemporary students (Nerad & Cerny, 2000; Nerad et al., 2004). Instead, those faculty continue to prepare their students as though all the students are going to become faculty, while in reality only about half of all Ph.D. recipients ultimately do so (Nerad et al., 2004).

Understanding what faculty/staff do and do not contribute to a doctoral program during various phases of it can add significantly to an examination of the quality of the program. Therefore, it is essential to design assessment approaches that seek greater understanding of the varied faculty/staff experiences, commitments, and perspectives that advance or constrain efforts to achieve successful doctoral programs.

Component 4: Outcomes

A fourth major component of our model includes the overarching outcomes desired for a doctoral program. These outcomes provide the guidelines against which we can judge success or failure (Gardner, 1994).

What are those outcomes? At one time, we could have answered this question with a straightforward response, suggesting that doctoral students needed to emerge solely as content experts with appropriate research skills that they could apply in their careers, primarily as professors in research institutions. However, as LaPidus (1998) notes:

> We have come a long way from the one student, one professor, one research project concept of doctoral education and are beginning to understand that doctoral study is an educational experience designed to prepare students for a variety of roles and responsibilities, all centered on the applications of scholarship. This means more than simply adding on components; it requires examination of the basic purpose and goals of doctoral education. (p. 102)

Indeed, recently there has been emphasis on preparing doctoral students for a greater variety of career possibilities and a broader range of knowledge and skills in such areas as teaching scholarship, community engagement,

teamwork, organizational development, ethics, and time management (e.g., Austin, 2002a; Gaff, 2002; Gaff et al., 2000; Golde & Dore, 2001; LaPidus, 1995; Nerad, 2005; Nerad, Aanerud, & Cerny, 2004; Nyquist, 2002; Wulff & Austin, 2004). We also believe that we should be striving to achieve such outcomes if the preparation of graduate students is to be successful. At the same time, though, we believe that the major outcomes for a doctoral program must be the completion of the program in a reasonable amount of time with a reasonable degree of satisfaction and preparation of students as creative, independent scholars (Lovitts, 2005). In addition, we would emphasize that students must have adequate preparation for a variety of career options. The challenge, then, is to find ways to include the broader range of knowledge and skills while simultaneously achieving the major outcomes desired for time to degree, levels of satisfaction, and preparation of students as independent scholars.

We can seek that successful balance, partially, as LaPidus (1998) suggests, through the ongoing examination of the purposes and outcomes of each doctoral program. We acknowledge, of course, that those outcomes and the specific methods for achieving them will vary depending on individual institutional and program contexts. In our framework, however, such ongoing efforts to identify and examine the outcomes of a specific doctoral program are essential to the success of the program.

Component 5: The Context of Doctoral Programs

The fifth component in our model of successful doctoral education is context, or those factors in the departmental and institutional environment as well as outside forces that affect the quality of education in a doctoral program. The components of doctoral programs previously discussed—programmatic elements, students, faculty/staff, and outcomes—all exist in a specific context that affects—and can be affected by—what happens within the program. Three levels of influence shape the context:

1. influences outside the institution
2. influences within the institution
3. influences within an individual program

Lovitts (2005) discusses such contextual influences in terms of two general categories. The broader culture of doctoral education (macro environment) includes "the social-cultural and institutional contexts in which students live

and work" (p. 150). Lovitts explains that "the social-cultural context embodies the norms, values, and beliefs of the surrounding culture" and "the institutional context is the cultural context of graduate education writ large and the cultural context of one's discipline" (p. 150). In contrast, the micro environment, according to Lovitts, "is the immediate setting—university, department, laboratory—in which a graduate student works and the interactions that take place in that setting" (p. 149). Influences from outside institutions, such as funding agencies, disciplinary associations, and hiring organizations/institutions, exert indirect and sometimes very direct influences at the macro level, often affecting such things as the kinds of skills needed for various jobs or future directions and emphases in doctoral programs. At the micro level of the immediate institution, such varied factors include the availability and type of financial support; campus facilities, such as the library; centralized support, such as fellowships offered through graduate schools; campus teaching and learning centers; housing; and child care. Also at the micro level, but at the level of a specific program, are factors, for example, such as the departmental/program climate, departmental funding and support, office space, lab space, computer access, and the network of peers that contribute to the kinds of interactions that take place in the departmental context.

In recent years, there has been increased interest in the changing contextual factors in doctoral education—at both macro and micro levels—and their influences on quality (e.g., Anderson, 1996; Clark, 1995; Golde, 1996; Golde & Dore, 2004; Julius & Gumport, 2003; Lovitts, 2005; Nerad & Cerny, 1993). At the macro level, for example, there recently has been much discussion about changes needed in the preparation of Ph.D.s (Nyquist, 2002) and about more specific issues such as the implications of increasing focus on interdisciplinary work in doctoral education. At the micro level there are increasing emphases on preparing students within their departments not only for roles as researchers and teachers, but also as engaged scholars who can provide service and translate their expertise into information that can benefit their communities. Such changes at all levels have implications not only for the quality of doctoral student preparation, but also for issues of attrition and time to degree. We believe that any assessment intended to improve a doctoral program must examine the impact of this variety of contextual factors and ways to mitigate or expand their influence.

As we have suggested in this part of this chapter, the programmatic activities, the students, the faculty/staff, the outcomes, and the context encom-

pass the major components of doctoral programs. Colleagues who have worked in doctoral education for some time are most likely not surprised by our suggestion that these basic factors are all important in assessing a program. What is different in our model of successful doctoral programs, however, is the way we have conceptualized these factors fitting together to contribute to desired doctoral outcomes.

The Alignment Model—How Do the Components Fit Together in Successful Doctoral Programs?

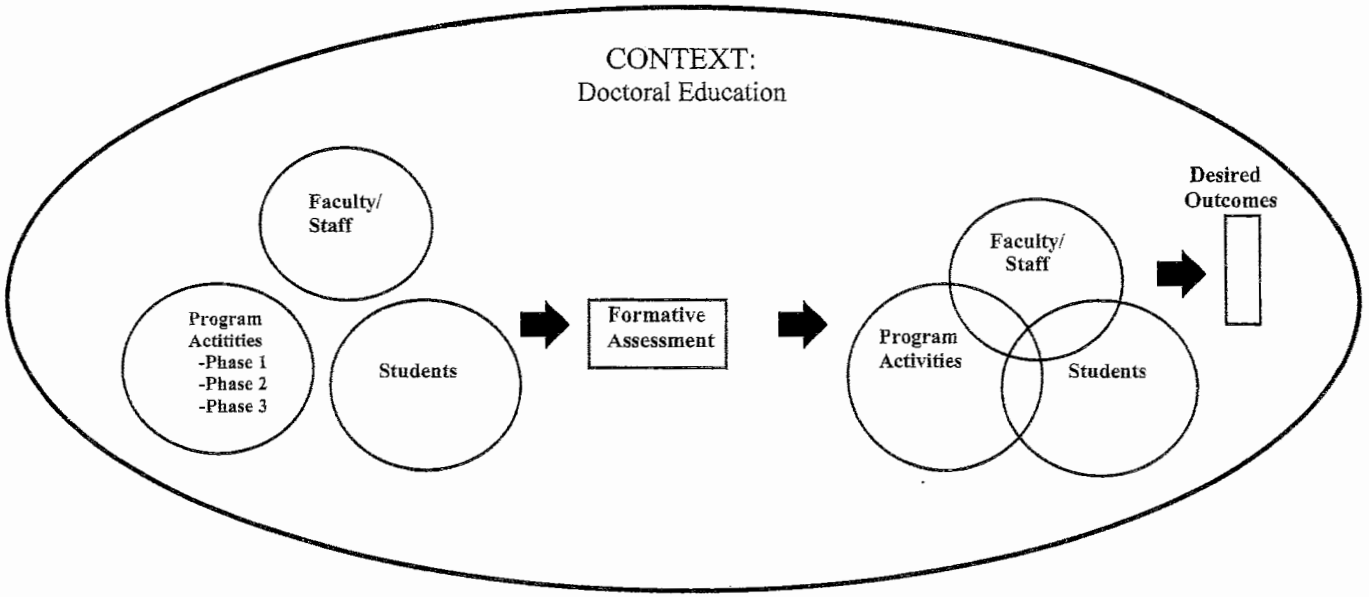
The five components previously discussed fit together in what we call an alignment model for successful doctoral programs. Although scholars have used the term "alignment" in a variety of ways in higher education, our framework in this model is consistent with the way Wulff (1985, 2005) uses the term to discuss teaching effectiveness. In his original case study research on teaching effectiveness, Wulff (1985) concludes that instructors who are effective in achieving their instructional goals engage in an ongoing process of aligning the content, themselves, and students in specific instructional contexts. When we shift this approach to doctoral programs, success in achieving desired outcomes involves the ongoing process of aligning program activities, students, and faculty/staff within their specific contexts (Figure 3.1). The overlap of the program activities, students, and faculty/staff in the specific context of a doctoral program represents *alignment*, the degree of congruence between and/or among these components. The greater the alignment between and among these components, the more successfully the desired outcomes can be achieved.

The box in the middle of the model represents the importance of a particular kind of assessment—formative assessment—in examining, as well as improving, the alignment to achieve desired outcomes in doctoral programs. To demonstrate more fully why formative assessment is so important in the alignment process for doctoral programs, we need to explain some of the basic premises underlying the alignment model for doctoral programs.

Alignment Premises—What Are the Underlying Premises of the Alignment Model for Successful Doctoral Programs?

Three basic premises underlying our alignment model help us to clarify why formative assessment is essential in doctoral programs.

FIGURE 3.1
A model for aligning components of doctoral programs to achieve desired outcomes



Adapted from "Using the Alignment Model of Teaching Effectiveness," by D. H. Wulff in *Aligning for Learning: Strategies for Teaching Effectiveness* (pp. 3–15), by D. H. Wulff, Ed., 2005, Bolton, MA: Anker. Reprinted with permission of Anker Publishing.

Premise No. 1: Alignment in Doctoral Programs Requires a Focus on Improvement

The underlying assumption of the alignment model is that successful doctoral education requires alignment among the basic components of the program. Thus, if a program is going to achieve outcomes successfully, it must take actions to improve the alignment among program activities, students, and faculty/staff in the specific context.

Premise No. 2: Alignment in Doctoral Programs Requires Internal Decision Making

To achieve alignment among the components in the context of a specific program, the constituents most directly involved in the program must engage in reflective decision making about how to proceed. They have to be involved, for example, in addressing such questions as:

- What kinds of data will be most helpful to our program review?
- How will we gather those data?
- How will we analyze and interpret the data?
- How will we identify and implement approaches that will work for needed adjustments?
- How will we determine whether or not those adjustments are working to align the components of our program?

Ultimately, constituents involved in the program must engage in ongoing communication that is essential to the reflective, cooperative decision making that will enhance alignment and improve the program.

The faculty/staff involved at all stages of the doctoral program, of course, are the primary internal decision makers in this process. Students, however, also have roles to play, not just as subjects, but also as participants, providing information and suggesting strategies to support alignment efforts (Hutchings & Clarke, 2004). In fact, Fagen and Suedkamp Wells (2004) argue that "because graduate students have the most to gain—or lose—from discussions of graduate education, they should be the most vital and integral participants in any conversations on the subject" (p. 87). Although individuals from campus or faculty development certainly can provide additional support in determining approaches and gathering information, faculty and students as internal decision makers have major responsibility for implementing the alignment process.

Premise No. 3: Alignment in Doctoral Programs Requires Ongoing, Cyclical Efforts

This premise begins with the recognition that basic components of a program—program activities, students, professors/staff, outcomes, and context—interact in a dynamic process that is in constant flux. As our model suggests, program activities change, both as a result of the contextual influences and as part of the socialization process that moves students through the three phases from knowledge consumers to knowledge producers. Students are changing as they move from one phase to another to become socialized as independent, creative knowledge producers. Faculty/staff change their roles as they support students through various parts of their educational experience. Desired outcomes change as needs and expectations of students are balanced against those of the institution and individual faculty/staff. The context changes with ongoing conversations about future directions in doctoral education at national, institutional, and programmatic levels. Most important, each of these components interacts with and affects the other components during various phases of the doctoral education process. Therefore, we do not achieve alignment at one point in our program and then stop the process. Rather, we engage in ongoing efforts to make the adjustments necessary to improve and maintain alignment as the process of graduate education evolves. Deciding when and how to make those adjustments requires an ongoing cycle of gathering information to inform the decisions necessary to improve the program and achieve the desired outcomes.

The alignment process, then, requires efforts to *improve* a specific program through *internal decision making* in an *ongoing, cyclical* process. Given this framework for successful doctoral programs as an alignment process, we believe that the assessment process for doctoral programs must address the criteria related to the alignment premises. For us, formative assessment is essential in the success of doctoral programs because, by definition, it addresses the criteria from these premises.

Formative Program Assessment—How Does Formative Assessment Address the Premises of the Alignment Model for Successful Doctoral Programs?

While the alignment model provides our framework, formative assessment, as Figure 3.1 suggests, provides the methods to achieve alignment in the process of improving doctoral education. To explain more fully what formative

assessment is and why formative methods are so important in addressing the premises for alignment, we focus on the purpose, audience, and timing that are central to formative assessment.

Purpose—To Improve

Formative assessment is conducted for the purpose of improvement. Scriven (1967) was the first to emphasize this point when he made the distinction between formative and summative evaluation. He suggested that formative methods provide information to improve an ongoing program, while summative approaches provide information to judge worth, merit, or value at the completion of a program. Formative assessment, then, focuses on the broad issues of what is working and what needs to be changed in order to provide the improvement or development for the program and provides "feedback that can be used to modify or 'form' the ongoing program and thus improve its outcomes" (Gardiner, 1994, p. 67). Certainly, both formative and summative approaches are essential in evaluating doctoral programs, but formative assessment is more consistent with the improvement-based approach of the alignment model for successful doctoral education.

Audience—Internal Decision Makers

As opposed to summative evaluation that is more likely conducted for the benefit of external decision makers such as central administrators, government officials, or accrediting bodies, formative assessment is conducted to support the faculty/staff and students as decision makers most directly involved in the program (Davis, 1994). In order to improve a specific doctoral program, the constituents most directly involved must engage in reflective decision making about how to proceed, and the assessment choices that are made within the process must reflect that assessment is contextual, depending on the people involved and their specific situation (Patton, 1997, p. 126).

There are a number of important reasons for making sure that the individuals most directly involved are at the heart of the formative assessment. For one thing, these students and faculty/staff are the direct beneficiaries of improvements that are made. Having faculty at the center of the internal decision-making process ensures that their expertise and experiences are included in the decisions about whether the program is on track and whether adjustment can or should be made. At the same time, the experiences and expertise of those faculty/staff can be balanced with the needs and expecta-

tions of students. Having the students involved both as providers and as users of the formative data provides opportunities for them to see how the program can acknowledge what they bring to it and help them feel that they are directly involved in contributing to its directions. That integration can be a step toward retaining students and addressing some of the alienation and isolation they often experience when they find that the campus or departmental culture is not responsive to their needs, perceptions, and expectations (Lovitts, 2004; Nerad et al., 1997, p. xi). At the same time, students can use the process to help them determine how successfully they are proceeding through their programs and what kinds of adjustments they need to make to enhance the alignment as they strive to accomplish both their goals and the intended outcomes of the program.

For us, the focus on these internal decision makers in an alignment model shapes the kinds of questions we might ask about the use of formative assessment in our programs. For example:

- Who are the internal decision makers who should be most directly involved in the process?
- How can expectations for formative program assessment be identified and shared with these internal decision makers from the beginning?
- What approaches will encourage students and faculty/staff to recognize that their needs, beliefs, and expectations have to be balanced in relation to needs, beliefs, and expectations of others involved in the process?
- What procedures are in place for including all constituents in the decision making about the kinds of adjustments that need to be made as the program progresses?
- What kinds of processes are in place to make adjustments when backgrounds, needs, goals, expectations, and perceptions of constituents need to be balanced against each other?
- How will those adjustments be implemented by the constituents and how will the effects be reassessed in ongoing ways?

These questions are particularly relevant since both faculty and students have significant roles and responsibilities in the formative assessment process (Pruitt-Logan & Isaac, 1995). Addressing the logistical considerations in such questions can identify the individuals who will be most directly involved in

the assessment process, clarify procedures for their involvement, and help to determine the ways in which the results will be used.

Timing—Ongoing, Cyclical Process

Formative assessment is typically an ongoing process that cycles important information back into a program to improve it. As Gardiner (1994) explains, formative assessment takes place "*during the active life* of a program, project or course" (p. 67). Thus, we do not wait until the end of a course or program activity as we are likely to do with summative evaluation. Instead, we increase the number of points at which we gather information while the program is in progress and use that information to make the adjustments designed to improve the program for current stakeholders.

When faculty/staff and students receive feedback as they proceed, they have the opportunity to make adjustments that can help them be more successful in achieving the intended outcomes. At the same time, the students benefit from being able to participate as the program is in progress. Because doctoral education is a socialization process that can lead to either persistence or attrition, it is particularly important that we understand how students are experiencing the process as they proceed through it. Once they have dropped out of the program, they are no longer available to provide feedback through either formative or summative approaches. The best chance of addressing concerns and challenges that might contribute to attrition lies in the potential for improvements during the program.

Now that we have shown how important formative assessment is in the alignment model, we can begin to illustrate its use within that framework. In the next section of the chapter, we focus on the application of formative program assessment in an alignment model.

Application—How Can We Begin to Use Formative Assessment in an Alignment Model for Doctoral Programs?

In order to use formative assessment to increase alignment, we, first of all, have to identify questions that examine the individual components of a current program. We now know that such questions have to be designed to obtain information that can increase alignment of program components as the program is in progress. In Table 3.1 we list some representative kinds of questions that could engage faculty/staff and students in examining the basic

TABLE 3.1.
Sample Questions for Assessing Individual Components of Doctoral Programs

Component	*Questions*
Program Activities	• What are the activities that make up the three phases in the current program? • What and how are the activities in various phases contributing individually and collectively to current students' socialization and to successful program outcomes? • What are the roles and responsibilities of the current students and faculty/staff during each phase? • What special opportunities or challenges do each of the phases present for current students and/or faculty/staff? • How can the phases be improved to enhance their impact on the success of a program for the current students and faculty/staff? • How might understanding of the effectiveness of the individual phases be used to address such challenges as attrition, diversity, time to degree, and other challenges for current students and the faculty/staff?
Students	• Who are the current students? • What backgrounds, needs, concerns, beliefs, goals, and expectations do current students have that will contribute to or constrain success in the program? • What makes needs, goals, expectations, and/or perceptions of current students interesting, special, or challenging for them or for others who work with them? • To what extent do those needs, goals, expectations, and/or perceptions change as the current student progresses through the program? • How successfully do various phases of the program address these changes? • What is the impact of such changes on current students' success in the program? • To what extent do the needs, goals, expectations, and/or perceptions of current students need to be balanced against those of the institution or current faculty/staff?
Faculty/Staff	• Who are the key faculty/staff? • What backgrounds, needs, concerns, beliefs, goals, and expectations do current faculty/staff have that will contribute to or constrain success in the program?

(continues)

TABLE 3.1.
Continued

Component	*Questions*
	• What makes needs, goals, expectations, and/or perceptions of current faculty/staff interesting, special, or challenging for them and for others they work with? • To what extent do the needs, goals, expectations, and/or perceptions of faculty/staff change as students progress through the program? • How successfully do various phases of the program address these changes? • What is the impact of such changes on the success of current faculty/staff? • To what extent is it possible, or necessary, to balance the needs, goals, expectations, and/or perceptions of faculty and staff against those of current students and the institution?
Outcomes	• To what extent are the current goals realistic and appropriate for the program activities? • How well are the outcomes being achieved in the current program? • What is contributing to that success during various phases of the current program? • What can be done to enhance the achievement of goals at various phases when efforts in the current program are nor adequate?
Context	• What are the current contextual factors that are affecting what happens in the program? • At which level are those factors most influential in the current program? • Which of those are helpful during various phases of the current program activities? • Which are constraining? • To what extent can any of the constraining factors be altered for the current program? • What approaches can be most helpful in addressing driving and constraining contextual factors as the current program proceeds?

components of a doctoral program. Our alignment model for doctoral programs suggests that none of these components alone dictates how goals for a doctoral program will be achieved. Although one of these components may receive more emphasis than another at a given point, addressing questions for all the components is essential in determining how alignment, and, ultimately, desired outcomes, can best be achieved.

As important as understanding each of these individual components is, it is even more important to examine the intersections between and among these major components of the program within their contexts. These interactions are relevant at each phase of the doctoral program. For instance:

- What effect does a program orientation during the initial phase have on a particular cohort of students in a doctoral program?
- What parts during the process of preliminary exams in the second phase of program activities are most helpful in assisting students to make the transition into their dissertation research and their future careers? How are those parts affected by the context?
- What can be done to improve the dissertation experience in the third phase of the program as a process that prepares students for a range of careers?

At the intersections of program activities, students, faculty/staff, outcomes, and the contexts of doctoral programs, then, lie important questions that create the need for formative program assessment and, thus, the need for ongoing attention to the alignment necessary for successful doctoral programs. To illustrate how formative assessment can be integrated across our alignment model, we have provided in Table 3.2 examples of sample questions, data sources, and procedures for improvement-based study of the intersections of some of the program components.

Clearly, there are other data-gathering methods we could have included in the examples, such as observations and assessment of representative student work, but there are excellent resources that explain fully what such methods are and how they can be incorporated in an overall assessment plan (see, for instance, Selim & Pet-Armacost, 2004; Westat, Frierson, Hood, & Hughes, 2002, as well as chapters 2, 5, 7, and 9 in this book). For our purposes in this part of the chapter, we simply wanted to illustrate briefly how formative assessment might be used to examine the components of doctoral programs and the interrelationships among those components.

TABLE 3.2.
Sample Questions, Data Sources, and Procedures for Using Formative Program Assessment Designed to Align the Components of Individual Doctoral Programs

Intersections	*Assessment Questions*	*Data Sources and Procedures*
Context—Program Activities: national agenda and program elements	Is our doctoral program curriculum designed as preparation for a range of careers?	• Student focus groups • Faculty interviews • Program director interview
Context—Students: graduate school services for students	Do the graduate school services meet the needs of our diverse student body?	• Student questionnaire • Graduate dean and program director individual interviews
Students—Program Activities: student satisfaction with program elements	How satisfied are our current students with their progress through the phases of the program?	• Student focus groups • Student satisfaction questionnaire
Faculty—Program Activities: faculty satisfaction with program elements	How satisfied are our current faculty with the use of required exams in the program?	• Faculty focus groups • Faculty satisfaction questionnaire
Faculty—Students: faculty-student interactions	Are our faculty members successfully implementing strategies that promote student development from directed knowledge consumers to independent knowledge producers?	• Student focus groups • Ongoing analysis of student portfolios • Faculty focus groups

Faculty-Students—Program Activities: advisement during various program elements	How can our student advising be adapted during each program element to fulfill current student and faculty needs/expectations more successfully?	• Student focus groups/satisfaction questionnaire • Academic and research advisor survey/individual interviews • Observation of advising meetings
Context—Faculty-Students Program Activities: faculty use of resources to support students in the program	How can our faculty best deploy departmental resources to support current students in moving successfully through the program?	• Program documents content analyses • Student focus groups/interviews • Faculty focus groups/interviews • Graduate dean and program director interviews

Conclusion

Our main goal in this chapter has been to present an alignment model as a framework for use in assessing doctoral programs and to explain the importance of formative assessment within that framework. As our explanation has suggested, the benefits of the approach are numerous. First, it positions us to examine not only important individual components of a doctoral program but also the intersections of those components. Thus, rather than viewing those components only in a hierarchical way—with some always more important than others—we can recognize that at various phases of doctoral programs any of the individual components may require additional examination and that exploring the interrelationships among the components can provide especially rich insights about when and how to improve programs. Second, integrating formative assessment into our alignment model reinforces the importance of ongoing, cyclical methods, shifting that review to a continuous improvement process as opposed to a process that is only conducted every five years or so. Finally, formative assessment in an alignment model focuses on the importance of involving the individuals who are most directly engaged in doctoral programs as participants, both in obtaining information

to base decisions on and in deciding what adjustments can be most helpful for enhancing alignment. Ultimately, using formative assessment to increase alignment in doctoral programs engages all of us more comprehensively and productively in assessing individual doctoral programs in ways that contribute to the achievement of desired outcomes.

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