

# Embedded expert models:

Implementing change initiatives which support departments from within

## Transforming Institutions Conference

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## Science Education Initiative Handbook

- FREE online at [pressbooks.bccampus.ca/seihandbook/](http://pressbooks.bccampus.ca/seihandbook/)

## Session page

- Handouts and slides at our session page: [bit.ly/ASCN-Embed](http://bit.ly/ASCN-Embed)
- Includes links to all the items below.

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## Discussion forum

On ASCN site, can serve as an ongoing resource for this community

- Sign up here: [ascnhighered.org/218084](http://ascnhighered.org/218084)
- Forum is at [ascnhighered.org/218081](http://ascnhighered.org/218081)

## Network

Engage with the TRESTLE network of embedded experts and faculty leaders and explore resources and examples here: [www.trestlenetwork.org](http://www.trestlenetwork.org)

## Job Opportunities

Note that Cornell has 12 open positions for DBESs in STEM plus a coordinator!

<http://provost.cornell.edu/leadership/vp-academic-innovation/active-learning-initiative/> or visit our session page

## Reflection and Application Sheet

Take a moment to recall and write down any questions, ideas, or strategies that you want to ask about or have heard about in the session. Quickly list them and any possible applications you see for them in your own work. Remember: these are possibilities; you can evaluate feasibility later.

From which section	Interesting Questions/Ideas/Strategies so far	Some possible Applications of those ideas/techniques/strategies

Reference: Angelo, T.A. & Cross, K.P. *Classroom Assessment Techniques: A Handbook for College Teachers*, 2<sup>nd</sup> edition. San Francisco: Jossey-Bass, 1993, pp. 236-239.

## What is a discipline-based education specialist (DBES)? – Chapter 2

### Summary:

A Discipline-Based Education Specialist (DBES) is a person who acts as an agent of instructional change in a disciplinary department. The overarching goal of creating such a role is to foster expertise in teaching and learning among faculty. This chapter provides a definition of the role in terms of goals, activities, and common characteristics of DBESs, followed by recommendations for structuring such a position in an institution. Without a clear definition of the role, faculty may see the DBES as a teaching assistant and not fully leverage their expertise.

### Checklist:

*In order to ensure that the DBES position has the best chance of effecting change in the department, initiative organizers should consider the following actions:*

#### **Ensure the critical features of a DBES position are established**

- The DBES is seen as a catalyst of departmental change whose role is to foster faculty expertise in teaching and learning.
- The DBES is hired directly into the department.
- The DBES has a high-level background in their discipline along with other desirable qualities for the role, such as interpersonal and time management skills.
- The DBES receives training in teaching and learning.

#### **Introduce the DBES role clearly to the department**

- Explicitly define the role of the DBES, so that the department, faculty, and DBES share a common understanding of their job.
- Ensure the DBES is seen as a member of and reports to the department (not the central organization).
- Ensure the DBES is seen as a departmental resource and faculty coach focused on course transformation and assessment activities, not as a teaching assistant or instructional designer. See table “Possible DBES tasks” in this chapter.

#### **Structure DBES positions to maximize potential for success**

- Create a formal job description which allows research and teaching as part of the same position.
- Locate the position within the department and have the department carry out the hiring process, providing guidance and advice during candidate recruitment and selection.
- Provide for at least a two-year appointment.
- Consider hiring at the instructor level (i.e., above postdoctoral level).
- Consider hiring multiple DBESs at once (within or across departments) to enable the development of a professional community.
- Allow opportunities for DBESs to teach courses (financially supported by the department and carefully monitored by the central organization).

## What makes a DBES successful? – Chapter 3

### Summary:

Discipline-Based Education Specialists (DBESs) represent a relatively novel career path, and thus require specific training and on-the-job support in order to be successful. DBESs must hone their interpersonal skills (including the ability to persuade and negotiate with faculty), have excellent project management skills, and develop the education research expertise required for course transformation work. DBESs do not arrive at the institution ready to take on all such activities; they require time and development in order to reach their maximum capability. Without support, DBESs may become discouraged and frustrated to the point of abandoning the position. This chapter discusses DBES oversight, professional development, and community-building efforts by initiative organizers and/or the central organization.

### Checklist:

*In order for DBESs to be able to successfully facilitate the departmental work and have high job satisfaction, initiative organizers should consider the following actions:*

#### Help DBESs develop professional skills

- Be mindful of the range of professional skills required for the job (interpersonal skills, organization, and professional growth).
- Ensure DBESs attend a well-structured training program (e.g. the New DBES Development Series).
- Provide regular DBES sessions, such as biweekly discussions, reading groups, reflective discussions, meetings with departments, DBES exit talks, and end of year events.
- Encourage seasoned DBESs to plan and facilitate DBES sessions.
- Require DBESs to submit regular reflective activity reports.
- Encourage DBESs' individual professional development, such as teaching a course, observing courses, reading the literature, attending conferences, and/or facilitating workshops.
- Ensure that DBESs have adequate time and professional support to publish results in the scholarly education literature.

#### Build a DBES community

- Encourage a large and active DBES community with continual addition of new members.
- Hire several DBESs within a department and/or across departments.
- Have experienced DBESs lead trainings and meetings for new DBESs.
- Identify a central meeting space.
- Create opportunities for online communication (e.g., email list, project management tool, online resource area).
- Provide regular professional development events.
- Provide regular social events.
- Host an end of year public event.

Additionally, it is important to create clear expectations for the departmental work, including departmental leadership and oversight. See [Chapter 5: Departmental Leadership](#).

## The Central Organization: Overseeing the Initiative – Chapter 4

### Summary:

While the structure will vary by institution, some sort of central organization or management is critically important in creating a vision and oversight for the initiative, building community for and training Discipline-Based Education Specialists (DBESs), communicating with stakeholders, and coordinating daily project operations. The central organization in the SEI acted as a highly involved funding agency, soliciting and funding proposals from departments, continually clarifying the DBES role, and providing ongoing oversight of projects through monthly DBES progress reports and regular meetings with DBESs and departmental directors. This oversight can help the central organization head off several common hurdles, such as poor departmental leadership, lack of departmental ownership of courses, and curricular issues, including over-packed curricula or entrenched course design. Troubleshooting such departmental issues is described in this chapter, in “Departmental factors which help and hinder” ([Chapter 5: Departmental Leadership](#)), and in Wieman (2017; especially Chapters 4-6).

### Checklist:

*In order for the central organization to effectively manage the initiative, initiative organizers should consider the following actions:*

#### **Provide adequate financial and human resources for the initiative**

- Allow for adequate duration (approximately 6 years in a department, 2 years for an individual course).
- Provide sufficient staff and budget (about 20% of total) for the central organization.
- Provide adequate departmental budget for DBES salaries, faculty incentives, recruiting, travel, research, and dissemination (roughly \$1.5-\$2M for large university departments).

#### **Solicit and fund departmental proposals which are likely to effect change**

- Plan to work with departments to develop a good proposal.
- Look for a supportive chair and a sense of departmental ownership of courses and educational programs.
- Require specifics and deliverables within proposals.
- Encourage direct financial incentives for faculty as part of the budget.
- State that funding and incentives can be discontinued if progress is inadequate.
- Evaluate proposals based on appropriate specificity and commitment by department as a whole.
- Fund at the appropriate level and duration, including time to ramp up and wrap up.

#### **Supervise work through clear, shared expectations and continued oversight of progress**

- Discuss the role of the DBES and their supervision at the start of and throughout the work.  
Support effective assessment on the part of the departments.
- Ensure the department appoints a departmental director to serve as the DBES’s direct supervisor and liaison to the central organization.

- Require DBESs to submit monthly progress reports.
- Hold monthly departmental team meetings.
- Hold occasional meetings with departmental directors and/or chairs.
- Allow flexibility on achievement of milestones if the original vision becomes unrealistic.
- Organize corrective meetings in cases where progress is inadequate, particularly where commitments are not fulfilled; be prepared to terminate or reduce funding.

#### **Support DBESs expertise and community**

- Hold biweekly meetings with all DBESs as well as regular social events.
- Provide professional development training for DBESs (See *Chapter 3: DBES Success*).
- Hold an annual end of year event.

#### **Plan for sustainability**

- Encourage department events to promote early conspicuous success.
- Use cross-departmental events to showcase success.
- Use/develop appropriate methods for assessing changes in faculty and departments.
- Communicate data and success to higher administration.
- Consider supporting the public archiving of course materials, but be aware of challenges.
- Seek future funding, connect with national networks, or use other forms of engagement.

## Leading the Work from within the Department – Chapter 5

### Summary:

Though many initiatives aim to influence the institution as a whole, the department is the key cultural unit on most campuses, and consequently, Discipline-Based Education Specialist (DBES)-focused programs should be designed to operate principally at the department level with coordination by a central organization. However, at the outset, a department may not have a natural structure for supervising a DBES and their accompanying course transformation activities. The department needs to set goals for the initiative in their own context, supervise the DBES, and engage faculty in the work. In the SEI, the success of individual departments in terms of faculty engagement and use of course materials varied widely due to departmental factors.

### Checklist:

*In order for the department to productively lead the work, department leaders should consider the following actions:*

#### Recruit and hire a DBES

- Advertise and recruit in disciplinary research, education research, and teaching and learning venues.
- Consider both internal and external candidates.
- Select an applicant who is expert in their discipline with good interpersonal and time management skills, and watch out for red flags.

#### Manage the project

- Appoint a departmental director who is well-organized and well-regarded, and has the authority to supervise the DBES and lead the project.
- The departmental director should lead the project, manage budgets, coordinate with the central organization, and publicize the work in the department.
- The departmental director should oversee the DBES's work through regular meetings and progress reports while protecting the DBES's time and sheltering them from politics.
- The chair should be engaged as an active advocate for the initiative.

#### Plan the work

- Strategically plan the work, considering departmental priorities and faculty interest.
- Create faculty working groups to generate consensus.
- Consider focusing on interested faculty rather than a logical list of courses.
- Create long-term teaching assignments.

#### Encourage and incentivize faculty participation

- Invite outside experts to talk about teaching.
- Provide time-saving incentives and perks for participation.
- Acknowledge the work in formal evaluations and address potential faculty fears.
- Value teaching improvements publicly.
- Give coveted teaching assignments as incentives.
- Engage teaching-focused faculty and other long-term instructors.

### **Make the work visible within the department**

- Make regular announcements on progress within faculty meetings, and invite the DBES and departmental director to present.
- Create a website to showcase the work.
- Encourage the DBES to host teaching and learning discussions, write a monthly newsletter, and implement other ways of engaging the department as a whole.

## **Setting the Stage for Effective Course Transformations – Chapter 6**

### **Summary:**

A primary role of the Discipline-Based Education Specialist (DBES) is to facilitate course transformation: applying what is known from research about effective instructional practices into a specific course context, and being deliberate in the approach by using data from the course to support choices and capture the impact of the work. The departmental leadership has an important role to play in ensuring that course development is a collaboration among faculty and the DBES, that the working relationships progress smoothly, and that the changes to the course are sustained over time. This chapter outlines how the departmental leadership can support effective course transformations. For details on how the DBES can undertake the course transformation work itself, see [Chapter 7: Course Transformations](#).

### **Checklist:**

*In order to develop high-quality courses with potential for sustainability, departmental leaders should consider the following actions:*

#### **Plan the course transformation**

- Consider focusing on interested faculty, rather than on specific courses.
- Plan teaching assignments for two or three iterations of a course.
- Allow several terms for the transformation, including a planning term, a first teaching semester, and a second teaching semester.

#### **Create shared expectations for DBES/faculty collaboration**

- Discuss the working relationship with faculty in advance.
- Document the DBES role in writing.
- Create a written agreement for the collaboration between the DBES and faculty.
- Monitor collaborations and intervene if problems arise.

#### **Plan for sustainability and culture change**

- **Create a plan for sustainability early in the project.**
- Generate departmental expectations on course content and pedagogy to be used in future.
- Consider co-teaching models to bring new faculty into the approach.
- Create long-term teaching assignments for the course.
- Share the work in the department through faculty meetings and newsletters.
- Connect the instructor who first teaches the transformed course with planned future instructors of the course.
- Create a course materials package that is transferable.