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TUNING

A Guide for Creating Discipline-Specific Frameworks to Foster Meaningful Change

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National Institute for
Learning Outcomes Assessment
Making Learning Outcomes Usable & Transparent

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Tuning: A Guide for Creating Discipline-Specific Frameworks to Foster Meaningful Change

David W. Marshall

Introduction

Tuning, as a methodology, implies a philosophy of curriculum design, pedagogy, and assignment design. It implies that successful study in a discipline depends on intentional construction of learning experiences for students. Intentional construction of learning experiences requires an understanding of the learning goals set forth by faculty for students, one that is shared by colleagues and with the students themselves. This philosophy foregrounds transparency. It also promotes an intentional approach to teaching that remains cognizant of the fact that, even if faculty are solitary in their instructional roles, teaching is inherently collaborative.

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Tuning's methodology functions as a collaborative endeavor that engages colleagues from multiple institutions in an effort to identify what learning they hold in common. Rather than imposing educational expectations on departments, Tuning has more typically made explicit that which experts in a field already agree to be essential to learning in the discipline. That consensus tends to carry forward into the work done on local campuses, though variation occurs. Recognizing that consensus and acting intentionally to construct coherent learning experiences depends on ongoing and recursive efforts to remain explicit about what a program does and why, such ongoing activity requires returning to questions of purpose, approach, and impact. To date, where programs have undertaken such work in response to the learning frameworks produced through Tuning, the impact has been significant and productive for faculty, staff, and students.

The end result of a Tuning initiative is a cluster of resources that can be utilized by departments and faculty for their own individual ends. Primary among these resources is the discipline core, identifying the nature of the discipline and the outcomes essential to student learning in it. One might think of the discipline core as a discipline-specific version of the Degree Qualifications Profile (DQP) which details essential learning shared by all disciplines and represents the sum total of learning represented by a degree (Lumina Foundation, 2014). A variety of other documents have taken up meaningful strategies for engaging with degree frameworks, including the *Roadmap to Enhanced Student Learning* (Jankowski & Marshall, 2014) and a report on the process of meaningful engagement with the DQP (Jankowski & Giffin, 2016). In addition, the forthcoming book *Degrees that Matter* (Jankowski & Marshall, 2017) offers extended discussions of ways to utilize degree frameworks to strengthen both faculty and student learning.

This report draws on a variety of sources to present observations on the different ways in which states, consortia, and disciplinary associations have used Tuning, as a flexible methodology, to work towards the production of discipline-specific learning frameworks.

These sources include:

- internal documents drafted by Lumina Foundation as they developed their thinking around Tuning as a foundation strategy for strengthening student success;
- resources produced by the Institute for Evidence-Based Change (IEBC), Lumina Foundation's technical partner for five of the funded initiatives;
- reports, written by the different state offices and sponsoring organizations, that describe and reflect on the processes undertaken;
- documents, produced in the different initiatives, that explain the goals and ways of participating in the work of Tuning; and
- the experience of David W. Marshall, who, with other IEBC staff, debriefed leaders of the pilot projects, engaged in ongoing observation of the Texas initiatives, and facilitated each of the other Tuning initiatives in the U.S. Please see Appendix A for a list of the different Tuning initiatives.

Tuning is a faculty-driven practice that formally emerged within Europe in response to higher education regulation following the Bologna Accords and the creation of the European Higher Education Area (EHEA).

Tuning: An Overview

Tuning is a faculty-driven practice that formally emerged within Europe in response to higher education regulation following the Bologna Accords and the creation of the European Higher Education Area (EHEA). A central concern of the Bologna Process was resolving credential and course equivalency differences among higher education institutions across Europe in hopes of supporting academic mobility for students. In response to this concern, European faculty initiated Tuning, which involves faculty coming together to define core competencies expected of students studying a particular discipline. Tuning establishes a consensus understanding of the learning essential to a discipline. The common understanding enables students to articulate their higher education learning to various institutions and employers across the EHEA. Tuning gained attention in the United States in 2008-09 as goals were set to increase the rate of degree and credential attainment in the U.S.

Tuning provides a structured but highly flexible approach to defining the learning deemed essential to a discipline and to identifying the benefits of a discipline-specific degree. Tuning offers colleagues at diverse institutions an opportunity to think about and discuss the central knowledge, concepts, and skills their disciplines provide students within the major. Ultimately the clarification of disciplinary learning profiles provides transparency about the learning expectations within the discipline. As in its European origins, Tuning in the U.S. context does not attempt to assert standardization of learning. Rather, as pointed out in a report from the Institute for Evidence-Based Change (2013), Tuning facilitates shared understanding among faculty members within a discipline "without compromising the distinctiveness and particular emphases of a given department's presentation of [a] major" (p. 2). As such, Tuning operates as an opportunity for faculty members as a community to refine their understanding of a discipline without restricting the pedagogy and curricular choices of their unique departments.

The clarification of degrees and the learning they represent motivated the initial explorations of Tuning by Lumina Foundation. As explained in a foundation rationale document, "With Tuning, students, employers, policymakers and the general public know what a degree in that field means, and why it represents learning in that particular field" (Lumina Foundation, n.d., p. 2). That clarity emerges from the production of disciplinary degree frameworks, which list learning competencies and outcomes agreed to be essential to a discipline and organized by degree level, and which provide reference points for programs reflecting on their own outcomes. Disciplinary degree frameworks were seen to provide a strategy for establishing a "common language" that could "be understood by faculty and administrators at the various colleges, as well as—and this is critically important—by students, employers and the general public" (Lumina Foundation, n.d., p. 2).

That shared understanding of degrees stood to create common points of connection among degrees and, more largely, help to address problems confronted by U.S. higher education. Policy makers (and the public more largely) have increasingly raised concerns about the quality and value of degrees beyond the institution. Questions have persisted among employers about the applicability of learning beyond the institution. More fundamentally, students have often struggled to navigate disjointed curricula in which learning expectations have not been transparent. With an eye to this larger national context, Tuning was perceived as having potential not just to elucidate the stages of post-secondary education and the relationships among courses for students (particularly those from under-represented groups), but to clarify both what students can do for employers and what policy makers are funding and why. This potential derives from Tuning's inclusion of a broad base of stakeholders in the process of developing disciplinary degree frameworks.

Tuning is a flexible methodology for identifying learning within a discipline as well as the different possible applications of that learning both within and beyond the discipline.

Tuning Methodology

Tuning is a flexible methodology for identifying learning within a discipline as well as the different possible applications of that learning both within and beyond the discipline. Five different types of activity comprise this methodology. As described by IEBC (2012), the five activities are:

Define a Discipline Core

Definition of a discipline core constitutes the heart of Tuning. A discipline core consists of four components. The first is a discipline profile, which "contextualizes the learning students do" by describing the field and its areas of study as well as the various approaches taken to the field and the sub-fields that are still emerging. The second, a core concepts template, lists the essential knowledge, ideas, and skills inherent to a discipline. The third, discipline-specific competencies, are constituted as more complex combinations of the various categories of learning comprised of knowledge, ideas, and skills in the discipline. The last are degree-level learning outcomes that describe the ways students demonstrate their learning of the competencies.

As may be apparent, the four components suggest a process in themselves. Faculty begin by describing the nature of the discipline, on what it focuses and

how it undertakes study, and considers what, when, and how students learn in the discipline. In practice, faculty groups defining a discipline core often found the idea of "competencies" confusing and struggled to differentiate them from degree-level outcomes. In some cases, such as the discipline core produced by the American Historical Association (AHA), competencies served as organizing labels for outcome areas rather than descriptions such as those described in the resources developed to support Tuning initiatives.[1] In other cases, competencies were eschewed altogether.

Map Career Pathways

Mapping career pathways emerged as a distinctive element of Tuning in the United States in response to public concerns about the relevance of degrees. Undertaking career mapping aims to provide students with a clearer understanding of the different options opened to them by particular disciplines while, simultaneously, equipping faculty in disciplines less clearly aligned to particular career fields with a better understanding of how students can apply their learning in the workplace. Mapping career pathways has occurred at two levels in Tuning initiatives. First, some faculty work groups have elected to consider the various sectors in which students work post-graduation.

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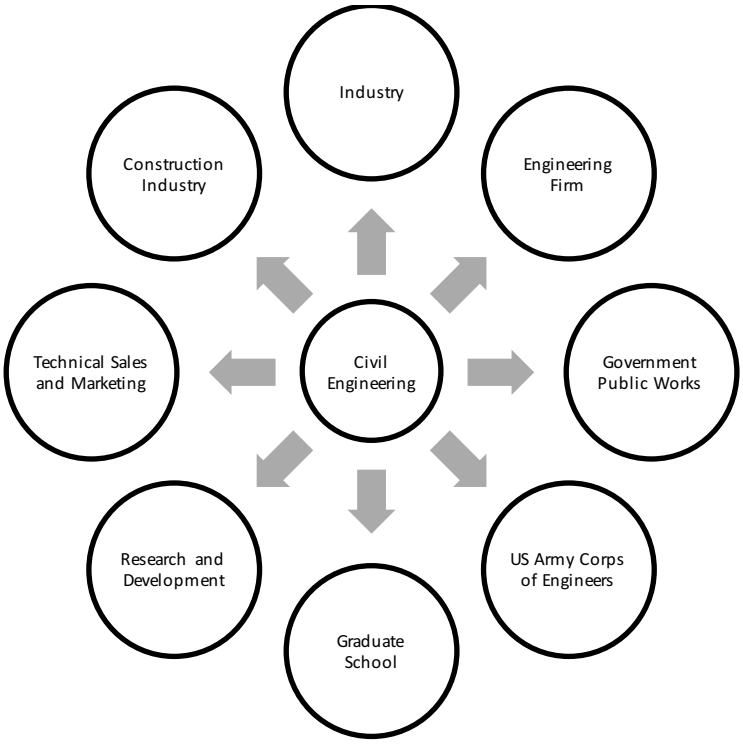

Figure 1. Career Pathways Map Example.

[1] To view the AHA History Tuning Project: 2016 History Discipline Core, see https://www.historians.org/teaching-and-learning/tuning-the-history-discipline/2016-history-discipline-core

Engineering faculty in Texas (Figure 1), for example, produced a figure that indicates different areas of public, private, and governmental employment in which civil engineers find careers. Alternatively, some working groups have thought more locally about specific employers who frequently hire graduates in a particular discipline. The latter approach often depends on consultation with local chambers of commerce, employers, and alumni.

Consult Stakeholders

Efforts to consult stakeholders are motivated by a two-fold purpose. First, consulting stakeholders beyond faculty colleagues can provide the Tuning work group a broader understanding of student learning experiences and the uses of their learning post-graduation. Second, consultation enables the faculty working on Tuning to communicate the domain, focus, and applicability of study in a discipline to students, campus personnel, parents, and employers. Taken as a whole, consultation with stakeholders fosters increased communication that can yield a more dynamic, responsive relationship among the various groups and individuals interacting with (and as) students. Consultation of stakeholders in these ways acknowledges the complex landscape in which higher education is situated and creates opportunities not just for increased awareness of that complexity, but also potential for collaboration and support. Groups to consult might include alumni, advising staff, librarians, career center staff, employers, graduate programs, students and colleagues from other institutions.

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Hone Core Competencies and Outcomes

Tuning presumes a recursive approach to work on the definition of a discipline's student learning. Faculty work groups collaborate amongst themselves and in consultation with others. Consultation yields insights and ideas that can be turned back towards the discipline core document. Honing of the core competencies and learning outcomes also results from trials of various ideas that arise in the faculty work groups and are "tried out" back in home departments, as indicated in Figure 2. The result is a revision of the discipline core that reflects the broader information accumulated through consultation and experimentation with the idea in context. Often, this has taken the form of faculty workgroup members providing updates on individually conducted work to the rest of the team through email and at the outset of meetings.

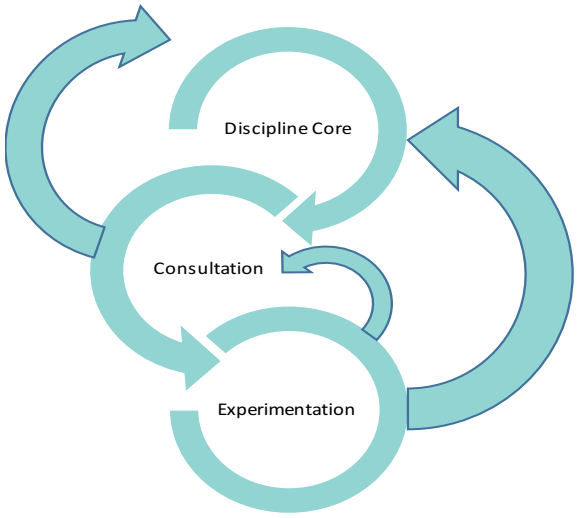

Figure 2. Recursive Nature of Honing the Discipline Core.

Implement the Discipline Core Locally

Local implementation of the discipline core document produced in Tuning comes down to a question of use: how does one use the set of competencies and outcomes within a department? As noted above, these documents offer a disciplinary degree framework describing what learning constitutes an education in a particular discipline at benchmark degree levels. Much like the Degree Qualifications Framework, the discipline core document produced in Tuning offers a tool for critical reflection about existing program-level outcomes, curriculum, pedagogies, and assignments among faculty within a specific department. The framework is not, therefore, intended to be prescriptive or represent required curricular expectations for a department and its faculty. Rather, it is intended to be a resource for creating more intentionally-designed and executed disciplinary degree programs within a specific institution.

Because programs nearly always have existing program-level outcomes, mapping, as a process of reflection on how the program addresses (or not) the tuned competencies and outcomes, often emerges as the means of beginning to engage with the discipline core document. In this context, a program's faculty describe the degree to which their existing program-level outcomes reflect the tuned outcomes and determine why they might differ. In other words, program faculty make explicit the reasons for the shape of their own program. Sometimes that process reveals particular strengths of the program. Other times the process uncovers underlying assumptions that may not hold about the shape and structure of a program. In those instances, program faculty are then better positioned to address problems collectively, because they form a shared understanding of the problems that may exist.

In short, mapping becomes a means of helping a faculty responsible for a program "get on the same page" about their shared program. Mapping in Tuning, therefore, resembles the kinds of reflective mapping practices that have been observed in work with the DQP, suggesting that once a framework has been established, whether it be general (as with the DQP)

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or discipline specific (as in "tuned" discipline core documents), the processes for implementing them at the local level are largely similar. The National Communication Association's materials for meaningful engagement with the Learning Outcomes in Communication, for example, offer strategies akin to those found in *Using the Degree Qualifications Profile* and *Roadmap to Enhanced Student Learning*, including mapping as collaborative and using mapping to explore connections between curriculum and co-curriculum.[2] These kinds of activities share a common goal of reflecting on strategies for fostering student learning in individual programs with attentiveness to the specific contexts of those programs.

In Tuning projects, the increased, shared awareness of the program's shape, rationale, and goals has been described in a Degree Specification (Figure 3). Degree Specifications have typically included five areas of description: the purpose of the degree; characteristics of the degree program; career pathways arising from study in the degree program; the style of education employed in the degree program; and the program's competencies and degree-level outcomes. Degree specifications were developed by individual departments represented in several of the Tuning initiatives, including in Kentucky, the Midwest Higher Education Compact (MHEC), and the American Historical Association. For a variety of samples of institution specific degree specification profiles see https://www.historians.org/teaching-and-learning/teaching-resources-for-historians/resources-for-tuning-the-history-discipline/degree-specification-profiles. Review of degree specifications indicates a shared, common understanding of study in the disciplines represented in these initiatives (a key goal of Tuning), but reveals a wide variety of approaches to that study. Degree specifications, thus, become tools for explicating the unique approach to learning that different programs in the same discipline offer.

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[2] https://www.natcom.org/learning-outcomes-communication

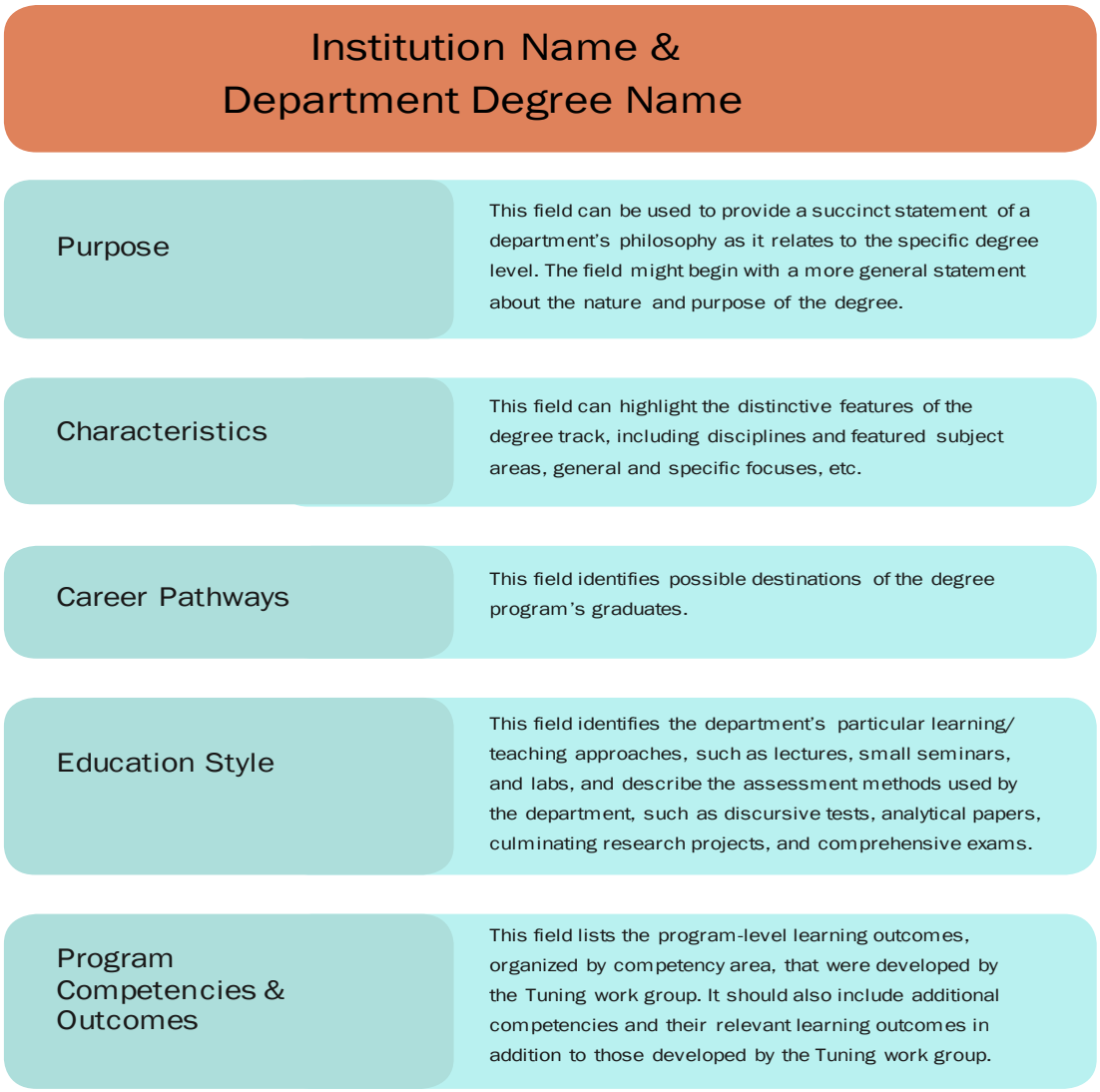

Figure 3. Basic Elements of a Degree Specification.

Some Tuning initiatives conceived of these different activities as a set of linear "steps," and early resources provided by IEBC described them as such, but in actual practice, Tuning initiatives have rarely followed a linear process. Organizations engaging in Tuning have nearly always found that the methodology is a recursive one. As one participant in both the Utah Tuning work and the AHA initiative put it, "Tuning is messy." Faculty work groups have often worked in multiple pieces of the methodology simultaneously. For example, while faculty in the National Communications Association (NCA) began with work to define a discipline core, participants were in constant consultation with their home departments and colleagues elsewhere regarding the work. While efforts were made to consult more broadly, the association staff were working on a revision of a publication regarding employment in the discipline. NCA's approach to addressing different elements of the methodology through shared responsibility and concurrent effort illustrate the way in which Tuning processes tend to work in multiple parts of the methodology simultaneously in a process of

gathering information, informing work, experimenting with ideas, and revising documents.

The same is true of the work by the American Historical Association, who began by defining a beta version of the discipline core document. This was turned over to a larger group, who suggested revisions and who then charted their own individual priorities regarding work within their programs, consulting with their own local stakeholders, or mapping local career pathways. In the state-based initiatives, faculty participants were in constant consultation with colleagues in their home departments as the discipline core was constructed, and, in the case of Kentucky and Texas, state offices ran surveys of employers who prioritized general competencies while faculty groups worked through disciplinary competencies and outcomes.

These examples underscore the degree to which engaging in the methodology offered by Tuning typically operates through a process of broad conversations with different groups. Questions revolve around how a discipline is best understood, the kinds of learning it fosters, and the opportunities for applying it in diverse contexts. Working from an inquiry-driven stance, however, requires the more flexible, recursive approach to Tuning. Rather than the process consisting of clear, straightforward steps that led faculty to agreed-upon understandings, there are focal points of activity that constituents address with different intensities and at different times depending on their unique situations, all in the hopes of defining the meaning of student learning within a discipline. Indeed, Tuning is more messy than neat, but the recursive visiting and revisiting of activities, always bringing new insights to bear, yields descriptions of discipline-specific learning and applications of that learning that have consistently enabled innovative approaches in individual departments.

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Two Models of Tuning

As the above-mentioned examples imply, Tuning initiatives have fallen into two broad models: state-based and national-disciplinary association sponsored (see Appendix A for a brief description of the U.S. Tuning initiatives). While the MHEC deviated from the single-state model by drawing multiple states together, it unfolded largely as did the individual state-sponsored examples. The motivation for these two distinct models have differed markedly. State-sponsored initiatives have often been driven by interests in strengthening processes of transfer and articulation of degrees in addition to the more general concerns discussed among motivations behind the introduction to Tuning. As such, this model of initiative has been organized by state higher education coordinating boards or state chief academic officers. Work groups have been comprised of faculty recruited from (primarily) public two- and four-year institutions and have often met monthly or bi-monthly.

The two national disciplinary associations that have undertaken Tuning, AHA and NCA, have done so in the interest of deepening thinking about teaching and learning in their disciplines. The impetus for doing so has roots in the political climate around higher education over recent years. With questions about the value of degrees and concerns about the rising costs of post-secondary education, both AHA and NCA turned to Tuning as a means by which to foster critical reflection on not just what learning defines

the essence of a discipline, but also to explicate the ways in which study in their respective disciplines prepares students for active participation in the workforce and civic life of citizenship. While matters of transfer have arisen, transfer has not been the motivating factor that it has been for the state projects.

Meaningful Engagement in the Process

While there are other differences between these two models of composition for Tuning initiatives, each has yielded procedural practices that can inform future initiatives, regardless of which model is undertaken. Ultimately, developing a Tuning initiative has required sponsoring organizations or agencies to create space in which faculty teams can focus their energies on collaborative reflection regarding a discipline and its learning, but additionally, strategies have needed to be developed for supporting the faculty participants as they work within their own local spaces. Doing so recognizes that Tuning initiatives are layered, with work occurring not just among faculty teams recruited from a range of institutions, convened periodically in a central location to work, but also in local institutions, to which the participating faculty returns and attempts to lead efforts to implement the results of the multi-institutional collaboration.

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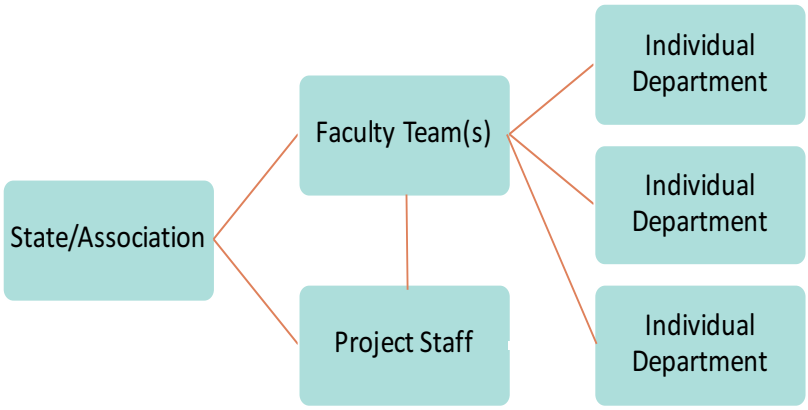

An early evaluation of Tuning commissioned by the Institute for Evidence-Based Change in 2012 found that disproportionate effort and resources were put into building the large-scale, multi-institutional portion of projects, with insufficient attention and support for the local-level work. That imbalance is easy to understand: the most apparent challenge in undertaking such a project is logistical—recruiting, convening, and documenting the work of the multi-institutional teams. The logistics pose the first and primary challenge. The result of this imbalance, however, is that the multi-institutional collaboration has a reduced impact on the local-level. Meaningful engagement in Tuning requires substantive planning at the outset, not just of the multi-institutional work, but also local-level activity. Additionally, because the process has tended to morph and shift in response to consultation and experimentation, project staff have had to make ongoing adjustments in response to developments that unfold as faculty conduct their work. Thinking holistically about the full scope of a Tuning initiative can mitigate the imbalance. These initiatives have been characterized by several distinct phases:

Conceptualization and grant writing: State and association staff have begun by identifying their motivating purpose, proposed project structure, timelines, faculty recruitment strategies, and desired products. Grant applications have served as the primary means of capturing these.

Recruitment of faculty participants and logistical planning: Once funds have been secured, project staff have begun implementing strategies for recruiting faculty while beginning to schedule initial convenings, create a timeline for the initiative, and develop internal structures and systems of organizing and managing the initiative. The national disciplinary associations have also used this time to develop communication strategies for their membership.

Initiative launch: Each of the initiatives held a "kick-off" at which faculty participants are more fully oriented to Tuning and the project's aims, team-building efforts begin, and faculty participants assume responsibility for the work itself.

Regular meetings: The initiatives have in all cases been structured around regular meetings, though frequency has varied, with states meeting monthly or bi-monthly and the national disciplinary associations meeting every three to six months to accommodate the national composition of their participants. Between these meetings, participants have utilized online tools, such as Google Docs, for conducting work, maintaining communication, and sharing drafts. In addition, regular meetings allow participants to strategize what and how to take ideas growing from the initiative back to their home departments and how to collect data from stakeholders groups.

Dissemination and local level support: Subsequent to the development of a discipline core document and other products, strategies have been implemented for distributing these documents across a state or among the membership of the association. Doing so has been most productive when support exists for using the discipline core locally, either through descriptions of strategies or through organized, one-day conferences to learn about the development of the discipline core and strategies for use.

Ongoing communication and data collection: National associations, in particular, have conducted ongoing efforts to include discussion of the project, its products, and ongoing efforts in association publications and at annual and regional conferences. In addition, both states and associations have worked on strategies for gathering information about local-level efforts. AHA has catalogued various pieces of the initiative (https://www.historians.org/teaching-and-learning/tuning-the-history-discipline) while NCA has joined them in making resources available for local level work (https://www.natcom.org/LOC/).

Facilitation

In most of the Tuning projects to date, facilitators have provided guidance on project design, advice about communication strategies and agenda-setting, and support through challenges encountered by work groups, but in each case, work on the discipline core and supporting documents has remained

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entirely faculty-led. More than half of the Tuning initiatives in the US have employed outside facilitation to support the project staff and faculty participants from planning through roll-out and support of results. The other projects have utilized project staff as facilitators. Outside facilitation afforded project staff external individuals experienced in formulating the parameters, schedules, and expectations of such an initiative. The leadership teams of both AHA and NCA have indicated in different debriefing sessions and in offhand remarks that this kind of facilitation was invaluable in assisting project staff to understand the full scope of such work, plan a productive strategy for moving through it, and keep work on track throughout the process.

The same effect can be seen in some state projects. In Texas, for example, staff from the Texas Higher Education Coordinating Board served as facilitators for the faculty teams. In Utah, by contrast, facilitation was less important, owing, perhaps, to the history of such work over a ten-year period prior to the launch of Tuning in the state. In states that have such structures and cultures, facilitation may be less important, because faculty may be more accustomed to working collaboratively across systems. Regardless, facilitation has consistently offered benefits to both project staff and faculty participants. As the MHEC Cross-State Tuning Initiative 2014 final report notes, "Tuning work groups would benefit from project staff serving as facilitators with responsibilities for running meetings, keeping the team on track, offering perspective and constructive suggestions when asked, and providing summaries of actions, accomplishments and assignments for future work" (MHEC, 2014, p. 47).

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Team Construction

The faculty teams that conduct the work of Tuning have typically ranged from eight to fifteen participants. Approaches to recruiting faculty participants have been one key difference between state-based and national association models of Tuning. Because states have used Tuning to address concerns over transfer and articulation, recruitment of faculty has focused on the appointment of a single faculty member in a given discipline from each of the state's institutions. Appointments have been made by working through administrative systems, from state offices of higher education, to senior campus leaders, and department chairs. States have trusted that these individuals will return to their home campuses ready to add the results of Tuning to the processes tied to transfer and articulation while, at the same time, deepening reflection about teaching and learning in departments.

The two disciplinary associations worked from a very different approach. Each of the associations conducted national application processes. First, the application process ensured faculty participated out of interest rather than expectation. Second, application processes required letters of support from chairs and/or deans to ensure that the department or college was in support of the project and ready to undertake local-level efforts to implement the results in ways appropriate to the individual institutional context. That second piece of the application speaks to a key lesson from the range of

Tuning projects: recruitment of faculty participants is best conceived as recruitment of an entire department that is willing to engage in the local aspects of Tuning. When participation has not been conceived in this way, faculty participants have, in some cases, found difficulty in generating interest among colleagues, and little meaningful engagement has occurred in the participants' own departments.

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Project staff in both state and association projects have made efforts to communicate with campus leaders, including presidents, provosts, and deans, to recognize the work done by individual faculty participants and to generate support for local engagement. That kind of recognition has also validated work on teaching and learning projects, which in some institutional cases can be undervalued and unappreciated. The valuing of work on matters of teaching and learning has arisen in several contexts related to Tuning, including the Tuning Advisory Board and DQP/Tuning Advisory Board, as well as by faculty participants in Tuning initiatives. Letters to campus leaders have recognized the overlapping of teaching and research required of participants and drawn attention to Tuning as a vehicle for developing the scholarship of teaching and learning.

Some Tuning initiatives have also included **non-faculty participants** on the work groups. In Kentucky, for example, each discipline team included an expert in assessment and evaluation to assist in thinking about clear statements of learning and the challenges inherent in creating well-formulated descriptions of a discipline's learning from learner-centered perspectives. Assessment/evaluation participants were also well-equipped to support faculty work groups in the generation of survey instruments for consulting stakeholder groups.

Most initiatives have not, however, included such experts. Some discussions in Kentucky were able to address questions of how the competencies and learning outcomes might be measured or observed, since assessment experts could pose questions, raise concerns, and offer suggestions. This strategy could be extremely productive when coupled with an effort such as AHA's to identify assignment types that might be deployed in classes to measure or observe the learning described in the outcomes.

Students have also been included in work groups, though their role has been less certain. Including students on the work teams recognizes that students are an extremely important stakeholder group, but in practice, most student participants have expressed their uncertainty about what they have to contribute, and faculty participants have been equally unsure, because the students selected were in the midst of their educations and did not have a complete perspective on the essential learning in their disciplines. This issue seems to be a matter of which students are included. In some cases, where recent graduates enrolled in graduate programs represented the student voice, teams found great value in the student participation. Recent graduates made valuable contributions regarding the alignment between their experience and the descriptions of learning developed in the discipline core documents, critiqued language for being too opaque or jargon-filled, and offered the

student experience of learning in the discipline. More often, however, inclusion of students has been through processes of consultation in which students offer their own perceptions of the discipline, their career plans, and their degree of comprehension of the outcomes statements.

Identifying and Orienting Leaders

In the case of each of the Tuning initiatives, the emphasis on preserving the 'faculty-led' nature of Tuning has resulted in establishing project leaders from among the faculty participants, with leaders representing both two- and four-year institutions. Different approaches to doing so have been used. In some cases, faculty teams elected team leads towards the conclusion of the kick-off event. Doing so honored a sort of shared governance over the project, in which faculty participants were able to establish their own leadership. In some cases, however, faculty participants expressed concern over not knowing their colleagues well enough to make an informed decision. In other cases, the team leads were simply the first to volunteer, with those volunteers not always being the best suited to the role. Over time, other participants emerged as vocal team leaders, but project staff in these cases noted that teams might have functioned more productively with those vocal participants playing a leadership role from the outset.

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The other approach taken to establishing faculty leadership in the initiative has been appointment of team leads by project staff. In Kentucky, project staff relied on personal relationships with some faculty to identify leaders, but such relationships were not established for each of the five disciplines undertaken. The challenge state-based initiatives have confronted with establishing faculty leaders is precisely one of familiarity. In the state-based approaches, project staff, located in system offices or coordinating boards, did not know faculty in the particular disciplines and across the state. Because recruitment of faculty participants happened in a top-down manner, from state offices down to campus leadership through chairs, strategic selections for project leaders were largely impossible. Utah is a notable exception, but also a unique case. Utah had established, ten years prior to Tuning, Majors Meetings, in which faculty from across the state met annually to discuss matters of transfer and articulation, a practice that equipped state staff to identify effective faculty leaders.

The national associations have been better positioned to recruit faculty leaders and to do so in advance of the kick-offs for their initiatives. Association staff have long-standing experience with the members of the association and have developed relationships with faculty already engaged in service to the association and its projects. Moreover, association staff are often members of the discipline and have broad bases of relationships on which to draw. As a result, both AHA and NCA recruited the faculty leaders directly. In doing so, both associations were mindful of drawing together a leadership group with representatives from two- and four- year, public and private, research and comprehensive institutions. Inclusion of the diverse range of institution types has been an important factor in ensuring that the work done in the initiative is representative of the wide variety of the higher education landscape.

Recruiting faculty leaders in advance has also enabled the associations to provide orientation prior to kick-offs and include the leaders in planning the sequence of meetings, strategies for work, and timelines for completion. Both groups held two-day meetings with their leadership teams to conduct this work, though the different initiative designs required differing agendas for the meetings. AHA engaged the leadership team in a process of reflecting on the nature of the discipline of History and created a draft of essential learning outcomes that could then be vetted by the entire project group of sixty faculty from around the country. In their approach, the leadership team was responsible, therefore, for creating a rough draft of the discipline core, which was revised based on feedback from the larger group. AHA's leadership team did not participate in planning the unfolding process by which the association would sponsor activity around those documents and left that largely to the project staff.

NCA learned from AHA's project staff and built on the model they established. NCA's initiative undertook two goals: first, to produce the kinds of discipline-specific documents that all Tuning projects create; second, to explore the practical relationship between Tuning as a process and the Degree Qualifications Profile as a degree framework. This dual-goal required team leaders to meet in advance to learn more about both Tuning and DQP, begin thinking about strategies for working with them, and plan the initial convening of the larger group of thirty participants. That orientation established a firmly collaborative working environment that included not just the faculty leaders, but also the association staff and the outside facilitator. The strategy of orienting the team leaders prior to engaging in the work of Tuning was exceptionally successful. Team leaders were well-equipped to guide their teams through the process, because they came with a big-picture understanding of the project and its aims. Their involvement in advance planning gave them increased clarity regarding the direction of the initiative, clarity which paid dividends in their ability to respond productively to questions and concerns from their teams even when they, themselves, could not anticipate what the end result of the project would look like. Most importantly, the collaborative working relationship among the faculty leaders, association staff, and outside facilitator resulted in thoughtful and strategic responses to the natural procedural challenges that arose. Other organizations would do well by emulating the approach undertaken by NCA in establishing a strong leadership team.

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Meeting Design

In each of the Tuning projects meeting design has been a function of timelines, which have typically ranged from one year to eighteen months. Project organizers and facilitators have used principles of backwards design developed around clearly articulated goals for the initiative. In some cases, these goals have not been difficult to determine: identify and articulate a discipline core; identify career pathways; and create supports for faculty to work within their home departments in meaningful and productive ways. If these are the goals, then planning the series of meetings revolves around establishing proposed dates for

completing each of them. Some initiatives have seen other goals emerge organically as work has unfolded. For example, the MHEC team working on Psychology determined that communication needed to develop with the American Psychological Association, since APA has designated learning goals for different post-secondary degrees. These goals, however, have been largely unpredictable and have emerged in response to challenges that faculty teams identify in the course of their work.

Defining timelines and goals has occurred as part of the planning process, often in advance of or concurrent with the recruitment of faculty participants. Hence, project organizers and staff have established visions for the project prior to the convening of its participants. That being said, initiatives have tended to have a degree of organic development as they unfold. Faculty participants in most projects have encountered unanticipated challenges that require deviation from the originally anticipated approach. Moreover, part of the process is feeling out the best way forward. Faculty in Utah and Indiana, for example, independently described recursive processes, in which faculty participants established plans for taking ideas and strategies back to home departments only to find that their experience there required revisiting topics and questions the Tuning team had thought to be fairly well established. Moving forward with defining a discipline core has, in some cases, required iterative revisions to the competencies and/or outcomes in response to information derived from consultation with campus partners, other colleagues, employers, or students. While the timeline may establish regimented benchmarks for making progress on the initiative's goals, the organic processes that emerge may require tinkering with agendas and plans along the way.

As each of the different Tuning initiatives has progressed, one conclusion regarding meetings has emerged consistently: meetings are best scheduled over multiple days and in person. The kinds of discussions encouraged by Tuning are involved and complicated. Single-day meetings simply do not afford the time necessary to conduct these conversations. As a result, most of the initiatives have held meetings beginning on a Friday morning, with final debriefing sessions scheduled for Saturday afternoons/evenings or Sunday mornings. The need for longer meetings is particularly true of kick-off events. Kick-off meetings provide important opportunities for establishing a shared vision for the project among organizers, staff, facilitators, and faculty participants (and the same could be said of NCA's initial meeting with the leadership team).

Kick-offs have typically involved several key components:

> **Statement of the goals:** Project organizers have typically begun by articulating the motivation for the initiative and its goals. This h as occurred by situating the project within the larger context of concerns revolving around higher education in either that state or, for the disciplinary associations, national concerns and specific concerns within the discipline. These articulations have often been staged in the form of a presentation,

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but there may be value in engaging in discussion around the topics. Participants have frequently had questions about the project's motivation and goals, best addressed in a question/answer format. Inviting more organic discussion through table-based engagement strategies may help to foster fuller and more nuanced consideration of the concerns motivating the project and encourage increased commitment to the project's goals.

Introductions and team building experiences: The success of Tuning initiatives depends on strong working relationships among the faculty participants. Each of the kick-offs have begun with opportunities for participants to meet and get to know one another. Some initiatives have made a point of affording time for relaxed socializing. NCA held its meetings at a hotel with a daily "happy hour" reception, where the participants were able to relax, talk, and build closer relationships. All the initiatives leveraged meals, particularly dinners, as social occasions, and in some cases lunches were built intentionally without agenda items attached so that participants could get to know one another. Kick-offs established communal activities as consistent components of the projects and became elements to which participants looked forward.

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Orientation to Tuning: Each of the Tuning initiatives familiarized participants by providing an overview of Tuning, its ethos, its approach to addressing the concerns motivating the initiative, its various components, and its products. Participants were given opportunities to raise questions and concerns about Tuning as part of this agenda item. In some cases, concerns were raised about the origins of Tuning, being of European origin, the appropriateness of adopting a foreign strategy to addressing U.S. educational systems, contributing to a move towards standardization of education, and the politics of and anxieties around accountability that can lurk behind the turn to Tuning.

Team work strategizing: Every Tuning kick-off has provided time for faculty participants to begin work towards the goals of the project. These initial meetings of discipline teams have been dominated by discussions about how the teams wish to proceed. Some teams have identified meeting "norms" to govern discussions and established strategies for communicating in between meetings. These meetings have been more successful when faculty leaders have been oriented prior to and included in the planning of the kick-off, particularly in NCA's initiative. Non-facilitators have led these discussions, as in Texas and MHEC's initiatives, with equal success, but the notable difference is that the participant leader approach has seemed to encourage a more rapid construction of team cohesion.

Reflection and feedback: Some project organizers have designated moments towards the end of the kick-offs to encourage reflection about the project and its goals and to collect feedback about the meeting and its results. MHEC formalized this procedure by employing an outside evaluator who surveyed participants,

gathered results, and reported back to project staff and facilitators. Other initiatives conducted less formal approaches by holding wrap-up sessions in which participants could ask questions, discuss the work and project goals, and raise concerns that arose as a result of the meetings activities. Encouraging reflection and feedback has been extremely important for a variety of projects, because that information has enabled project staff and facilitators to work responsively to participant needs. Agendas can be better constructed to reflect where teams are in their progress and resources can be developed and provided to better support the teams in their work. Working flexibly preserves an organic process development that attends to where participants are rather than where they are assumed to be.

Concluding business and goal-setting: Consistently, Tuning kick-offs have concluded with discussions of the progress made during the meetings with an eye towards what remains to be done. The process of taking stock of progress has in many of the initiatives generated a sense of accomplishment among participants and provided a natural form of encouragement to pursue interim goals between meetings. Meetings have typically concluded with a statement of the goals that have been set and the strategies faculty teams have set for accomplishing them. The importance of having a clear sense of direction regarding intervening tasks cannot be understated.

Working flexibly preserves an organic process development that attends to where participants are rather than where they are assumed to be.

Most of the subsequent meetings have followed the kick-off as a template of sorts, varying the structure to accommodate the various stages of work. For example, rather than discussing the goals of the project overall, subsequent meetings have made the goals for that particular meeting explicit. Additionally, rather than orienting participants to Tuning, staff review and begin work on other aspects of the initiative, whether it be to review stakeholder consultation or mapping career pathways. Doing so has established incremental introduction of the different elements of T uning. NCA and AHA were both particularly good about helping participants to think about stakeholder consultation and career pathway mapping, though in quite different ways. [3]

Communication

Establishing strong communication systems amongst faculty participants and external partner or stakeholder groups has been an essential component of the Tuning initiatives, with various initiatives utilizing different m e ans to address different purposes and audiences. All Tuning initiatives included the creation of a web-presence within the sponsoring organizations' websites. These websites have provided descriptions of the aims of the projects, updates on progress, and the documents produced. In addition, four types of communication have emerged as being particularly significant to the various projects: leadership team planning, collaborative communication among participants, informational communication, and broader dissemination of updates and the resulting documents of the initiatives.

[3] AHA decentralized that work and tasked faculty to conduct those efforts individually in their local contexts, while NCA designated sections of meeting agendas to planning these efforts.

Regular communication among project staff, facilitators, and faculty participant leaders was a key strategy in keeping the initiatives on track. In most cases, the initiatives involved periodic conference calls among the leadership team. Calls were often conducted, sometimes twice, in advance of each meeting. These calls enabled the leadership team to craft and refine agendas, establish meeting goals, and resolve concerns prior to convening the participants. At meetings, time was set aside in some cases, for the leadership team to check in. Those meetings enabled the leadership team to assess progress and revise agendas in response to what was being observed. Calls were also, in most cases, conducted following the meetings to evaluate mood, progress, and new challenges. Those calls laid the foundation for pre-meeting calls by identifying emergent priorities for subsequent meetings.

To keep faculty participants connected between meetings, all of the Tuning projects employed email correspondence and phone calls among the team members. Tasks were, in each case, set for completion between meetings, and participants shared progress with one another through email questions, updates, and draft documents. Collaborative drafting was, in some of the initiatives, conducted through Google Docs, which enabled participants to edit the same version with changes and comments identified by user. Some initiatives preferred to save documents in a shared drive using OneDrive, though in two cases, this caused problems, as some members moved documents around or deleted them without realizing that those changes would cascade through each user's local folder. Phone calls were used less often, except in NCA. For NCA, work teams made use of conference calls, in part, because meetings were spaced three to six months apart, so time to work together in between was deemed important.

Project staff provided regular informational updates to participants in all of the Tuning projects. These updates, always conducted through email, have been an important means of attending to a variety of topics. Foremost among them, logistics, including travel arrangements, reimbursement processes, and stipends (when allotted) have required ongoing communication among staff and participants. Project staff have, in some cases, also provided advance information about meeting agendas and summary emails documenting progress made during meetings. AHA undertook a strategy to broaden the information exchanges in their initiative, in large part due to the scale of their work. With sixty participants working in a largely decentralized fashion, AHA project staff created a listserv for faculty participants. Participants posted updates on their local efforts, observations about the initiative, and advice about working in the local context. Project staff occasionally posted relevant pieces (such as news stories) that situated the project in a larger national context.

Broader dissemination of progress and results of Tuning processes has been a larger challenge. States have typically depended on faculty participants to convey information to the disciplinary departments across the state. In some cases, the sponsoring state offices mailed letters and the discipline core documents to campus leaders to draw attention more broadly. Kentucky and Texas both communicated to state legislators, with Kentucky securing time on a state committee agenda to review and explain the project. (What

Four types of communication have emerged as being particularly significant to the various projects: leadership team planning, collaborative communication among participants, informational communication, and broader dissemination of updates and the resulting documents of the initiatives.

was scheduled for a very brief report turned into an hour-long conversation, because legislators were so impressed with the initiative.) The national disciplinary associations have had something of an advantage in disseminating the progress and results of their initiatives. With large memberships and a variety of communication strategies in place, both AHA and NCA have been able to reach large faculty audiences directly. By including descriptions of their initiatives and updates on progress in newsletters, they were able to create broader awareness. By emailing a department chairs listserv, they were able to communicate not just these updates, but information about using the resulting learning outcomes. Both associations also devoted issues of journals to matters of teaching and learning in ways that leveraged their work with Tuning and created designated spaces at their national conferences for workshops and sessions related to teaching and learning in light of their initiatives.

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AHA and NCA have each pursued other productive activities to support work with the "tuned" outcomes among those in their disciplines. AHA has undertaken small, regional convenings to provide information, examples of work, and support to faculty from institutions that had not been part of the original Tuning initiative. Additionally, AHA has encouraged disciplinary reflection on assignment design by sponsoring assignment charrettes that provide members with opportunities to workshop assignments aligned to the AHA outcomes. NCA created a packet of materials that has been mailed to chairs, been free to pick up at conferences, and includes documents to help members of the association communicate the nature of the Tuning initiative and its results to diverse audiences. Project staff, in collaboration with the faculty leaders and project facilitator, created four distinct documents, all located here: https://www.natcom.org/learning-outcomes-communication.

- The first document describes the impetus for the project, presents the discipline core developed in the project, and explains it for departments and faculty (NCA, 2015a).

- The second document, also for departments and faculty, describes strategies for engaging with the learning outcomes productively (NCA, 2015b).

- The third document is written specifically for campus administrators and explains the discipline of Communication and the ways its learning is and explains the discipline of Communication and the ways its learning is applicable to different purposes (NCA, 2015c).

- The last, briefer than the others, concisely explains the learning majors in Communication have for employers (NCA, 2015d).

Together, these resources provide multiple ways of explaining the learning that comprises the study of Communication in ways that enable a variety of audiences a clearer understanding of it.

Challenges in the Process

Tuning, when presented to potential faculty participants, is often met favorably. Results from a survey given to attendees at Lumina Foundation's initial pilot convening indicated that faculty perceived the process as being potentially productive in encouraging greater thought about matters of teaching and learning (Marshall, Jankowski, & Vaughan III, 2017). Criticisms tended to follow typical concerns about learning outcomes and assessment, but as Tuning has continued to unfold, these concerns have been less frequent (although this may owe to the two national associations, whose participants applied to participate, having undertaken Tuning most recently). Subsequent faculty groups have consistently recognized the value of Tuning, particularly as their ongoing participation developed their understanding of the process. Historian Patricia Limmerick, in remarks to the AHA's participants, observed, too, that one unexpected benefit of Tuning was "enjoyment." Overcoming initial resistance has declined as a challenge, but throughout the array of Tuning initiatives, whether using the state-based or disciplinary association-based model, challenges have emerged in fairly consistent patterns, with a variety of productive work-throughs.

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Starting Points

Tuning initiatives can pose overwhelming goals for faculty participants: how does a group conceptualize the essential learning in a discipline? Where does that conversation begin? Do they begin by surveying colleagues, reviewing textbooks, or brainstorming? Any one of these might work, but each can pose their own challenges. Surveys require time to build and delay progress on drafting a discipline core, even if work groups can begin mapping career pathways and consulting other stakeholder groups while they wait. Textbooks can foster particular approaches to learning in a discipline that faculty may not want to dictate their own understandings as they develop outcomes. Brainstorming can generate lengthy lists that need to be pared down and prioritized. Many work groups have begun this way, but others have started more reflectively.

The American Historical Association undertook the more reflective approach. At the initial meeting of the leadership team, the group asked questions of the discipline: What is the discipline of history? What do historians do? What is the work of history for? These questions spurred a lively and productive conversation regarding subject matter, the ways historians construct knowledge, and how that knowledge is used. That approach mirrors the drafting of a discipline profile (IEBC, 2013; MHEC, 2014), which consists of reflecting on and answering a series of questions:

1. On what does the discipline focus? What issues does the discipline address?

2. What does 'doing' the discipline entail? What approaches does the discipline utilize?

3. What parts of the discipline are established in the early stages of education? What parts are established in advanced stages of education?

4. How and in what contexts is the discipline used? What does training in the discipline enable an individual to do?

These questions have been generative when they have been utilized by work groups. The first two questions ask faculty to explicate ideas regarding their disciplines that may be long since taken for granted with years of internalizing the work of the discipline. These questions have allowed work groups to, in the words of one project participant, "rediscover the discipline." The second pair of questions encourages work groups to begin identifying what the discipline looks like in learning and application of learning. Together, the discipline profile questions lay a foundation from which faculty can begin to focus and refine thinking on what learning is essential in the discipline. Doing so has facilitated the process of defining competencies and articulating learning outcomes.

Another strategy undertaken by several of the state-based projects was equally driven by questions, though more focused on student learning:

- What should a student in the discipline know?

This question addresses the subject matter of the discipline, the essential bodies of knowledge on which the discipline is based.

- What should a student in the discipline understand?

Different from the knowledge and information important to the discipline, this question addresses the essential concepts and ideas that govern the discipline and its ways of working. In recent years, the idea of "threshold concepts" has emerged as a heuristic for considering student learning in relation to ways of knowing. This question may be a place in which to consider these in relation to the discipline.[4]

- What should a student in the discipline be able to do?

This question focuses on the skills that the discipline imparts and develops in students. It focuses attention on the kinds of activities that the discipline teaches as "ways of doing" the discipline.

Together, these questions direct attention to different types of learning that education in a discipline fosters. By segmenting that learning into different types, faculty groups have found the task more manageable. Worth noting, the development of the discipline profile can begin to identify elements of this learning in broader terms, so that engaging in those questions first provides material from which to draw as a work group and moves into this second set of questions.

Utilizing Existing Documents

As many faculty participants have observed, there are myriad learning

Together, the discipline profile questions lay a foundation from which faculty can begin to focus and refine thinking on what learning is essential in the discipline.

[4] See, for example, Glynis Cousin (2006)"An Introduction to Threshold Concepts," or the edited collection by Jan H.F. Meyer, Ray Land, and Caroline Baillie (2010) *Threshold Concepts and Transformational Learning.*

outcomes documents for each discipline already. By now, every department is required to have assessable learning outcomes. In addition, some disciplines have identified best practices for their disciplines even when they lack learning outcomes. Different faculty groups have found these documents to be either a great hindrance or a great help.

Some groups have been stymied by existing documents. Two reasons have emerged for this challenge. For one disciplinary group in Education, participants struggled to look beyond state and accreditation requirements for teacher certification and practice. While it was not written in the form of learning outcomes, the group tended to default to the articulations in the state document. In this example, the existing documents constrained the group's thinking and hindered the progress that might have been made otherwise. The second reason has to do with thinking in terms of scope and aim of Tuning initiatives: identification of degree-level outcomes for a discipline. Two disciplinary groups that consulted the program-level outcomes of the departments of which they were members struggled to move beyond local concerns. Conversations became overly dominated by discussions of particular pedagogies, curricular structures, and tensions within departments. Those topics can be informative, as the example below will demonstrate, but in these two cases faculty participants became overly distracted by particulars and were unable to move towards considering the degree-level learning that their various programs held in common.

These examples indicate that a dynamic balance needs to be in play when faculty groups consult existing documents. An extreme in either direction—consulting nothing or becoming hung up on such documents—can disrupt an otherwise productive group. Montana's project in Business provides an excellent example of this. In this case, facilitators became too intent upon shielding the participants from the excessive influence of existing program's documents. As a result, the participants felt a great deal of frustration, because they were prevented from working collaboratively around the shapes of their programs, their commonalities, and their differences. This is likely a problem particular to state-based programs, since pressures around transfer of course credits are a key issue. Facilitators, in this case, prevented participants to learn about the particularities of their partner programs in ways that could inform both the generation of a discipline core document and an increased awareness of what those partner institutions do and why. When facilitators finally shifted course, morale improved and participants felt a more productive direction had been established.

The lesson to be taken from this example is, again, that a dynamic balance needs to be established regarding existing documents. Faculty groups may need to be cautioned about allowing them to overly-determine their work while being cautioned, too, that working in a vacuum can leave work ungrounded. Some faculty groups have used existing documents to inform their own work without being completely governed by them. Groups have used several strategies for doing so. First, some discipline groups have gathered departmental resources, including program-level outcomes, syllabi, and assignments, which they reviewed to locate areas of comparability and areas of distinctiveness. Effectively, these groups have mapped the various

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documents in relation to one another to determine if a clear disciplinary core emerged. Alternatively, another disciplinary group reviewed the documents and then set them aside, allowing them to serve as a passive influence over discussions. In each of these cases, the work groups deemed that rooting their own deliberations in existing thought served well to ground their thinking in existing practice.

Engaging with stakeholders

At times, faculty groups engaged in Tuning have been uncertain as to the purpose of such consultation, owing largely to a fairly tight focus on developing a discipline core that looks inward towards curriculum and teaching and that thinks less broadly about the other places in which students learn. To some extent, this challenge has been driven by a lop-sided understanding of what consultation may involve. Consultation need not only be spurred by a "what do we need to know?" approach for faculty; it is also well-understood as being motivated by a "what do they need to know?" approach. In other words, consultation may be most productive if approached as dialogue.

Consultation may be most productive if approached as dialogue.

A dialogical approach may be a change in practice for academic programs with existing advisory boards. Disciplinary or professional advisory boards have been a common resource on which faculty work groups have drawn to consult employers, in particular. They are common among disciplines in the health professions, engineering, and business, amongst other fields, but consultation with them tends to be under-developed, being limited to reviews of outcomes and consultation regarding the degree of preparedness among students. Take, for example, the matter of writing. Repeated surveys indicate that employers seek students who can write well. An employer advisory board will likely confirm the importance of an outcome regarding developing proficiency in writing. What, however, do members of the advisory board mean by "writing well," and how does that compare to the notion of "writing well" held by faculty? Each side in the conversation may have quite a bit to learn from the other by attending to such matters.

But who counts as a "stakeholder"? This question has often been a challenge for faculty groups considering talking to those outside the discipline. In most cases, Tuning groups have first considered employers (as we have done in this explanation), sometimes with consternation about vocationalizing the curriculum. While employers are certainly an obvious stakeholder group, there are a variety of others that can benefit a work group. One might bear in mind that campuses actively hire and employ students, too.

Historians from both the Utah and Indiana projects, as well as in the AHA's national effort, have found value in talking with campus advising personnel about the progress of students towards degrees in the discipline, concerns expressed by students in advising appointments, and what a degree in history trains students to do. Students, themselves, are another valuable stakeholder group. Some groups among the NCA initiative queried students about topics such as their reasons for declaring the major, what they understand the major to teach, whether outcomes statements made sense, and what they hoped to do with the degree. In Utah, faculty consulted with educators in the K-12

system to discuss the learning that is established as a foundation for post-secondary learning. Colleagues in other disciplines have been identified by some Tuning participants as valuable stakeholders to speak with, since doing so begins to build bridges across typical campus divisions and to establish curricular connections in more general areas of learning.

The different Tuning initiatives have typically utilized two of the three different types of consultation strategy, each with its strengths and shortcomings:

Surveys: Surveys have been used in multiple Tuning initiatives for different ends. In Texas, the Coordinating Board coordinated the distribution of surveys to employers regarding the relative values of different general proficiencies. While the surveys produced clear results, the value of that information was minimal, given that the results mirrored studies such as those sponsored by AAC&U and other groups. In Kentucky, the Biology group surveyed colleagues across the state regarding the appropriateness of the different outcomes developed. That information enabled revision in light of gathered information. The ability of surveys to reach a large sample size efficiently stands as a key benefit. Other faculty teams, however, have sought deeper responses, and so have utilized the options below.

Focus Groups: Focus groups gather rich data on a range of issues while permitting the groups to ask follow-ups and clarifications. Utah used focus groups early on to gather insights from employers into perceptions of learning and what they desired of their new employees, with results offering insights—such as the desire for resilient employees and the ability to adapt to different challenges.

Interviews: Most Tuning groups have used interviews as one strategy for consulting stakeholders. These interviews have often been informal in nature, with faculty participants talking with colleagues in both their own and other departments in the discipline. Members of AHA's initiative undertook a variety of interviews, however, with one member meeting with local employers, and another working with campus career centers and advising staff.

Across the different initiatives the question of who organizes consultation has arisen: Do sponsoring organizations or the faculty participants themselves establish contacts and gather information from them? The question has resulted in different answers from one project to another. As noted above, when large surveys regarding general knowledge and skills have been called for, sponsoring organizations have tended to take responsibility for the efforts. In the two initiatives undertaken by national disciplinary associations, faculty participants and project staff did discuss the possibility of conducting surveys of their membership on a variety of points, including vetting of the discipline core document (though each preferred sessions to discuss their documents at conferences) and gathering information regarding uses of training in the disciplines outside the academy. When faculty have wanted more immediate responses, they have typically taken on the responsibility of gathering the data themselves.

Students, themselves, are another valuable stakeholder group.

Mapping Career Pathways

Two distinct ways of formulating the question about career alignment have emerged in Tuning initiatives nationally. One asks where into the workforce students carry their degrees. The other asks how learning outcomes align to the tasks expected in particular career fields. The two are clearly related, but the implications for working are divergent. Asking where students take their degrees depends on communicating with alumni or surveying employees about their pre-employment majors. Asking about how outcomes align to career fields requires analysis of job descriptions or the data in two Department of Labor websites and identifying parallels with the kinds of learning indicated by the outcomes. One approach is neither right nor better than the other, rather each offers a different understanding of how disciplines prepare students for the workforce.

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The term "pathway" has been used to describe different trajectories, from General Education themes to career-oriented education. The idea of a career pathway in Tuning has posed similar challenges of definition, with different groups identifying distinct strategies for describing the kinds of careers to which disciplines align. For applied fields, such as nursing, graphic design, education, or accounting, questions about career pathways are more straightforward, with students often interning in particular sites in advance of beginning their careers. Many of the disciplines involved in Tuning, such as biology, mathematics, and chemistry in the sciences, and history and communication, in the humanities, are much more broadly applied, and so clear career alignment becomes more challenging. Some faculty in such fields have found the question of career alignment disconcerting. Concerns, as noted above, about adopting a vocational perspective have arisen in some discussions, while, in others, faculty have indicated a lack of awareness about where students go and what they do with their degrees.

MHEC's faculty groups undertook productive work to remedy their own uncertainties about career pathways. In particular, they consulted two resources. First, they reviewed the Department of Labor's Occupational Outlook Handbook (https://www.bls.gov/ooh/), which provides a searchable database of careers, necessary training, job duties, and median salaries. Second, and similar to the Handbook, MHEC's teams consulted O*Net (https://www.onetonline.org/), another Department of Labor-sponsored site that allows searches by occupation, skills, and interests. These resources, while requiring time to explore, provided information about the kinds of degrees frequently (and less frequently) held by employees, the sorts of skills expected in different career fields, and the duties typically assigned. Use of these sites enabled the MHEC teams to develop career pathways resources that point to a wide variety of industries employing graduates with skills relevant to specific disciplines.

In grappling with the challenge of identifying career pathways, discipline teams have encountered two key questions: What is the scope of the career pathways mapping, and; What means are used to determine such alignment? The scope of career pathways mapping ranges from general to specific, with the general representing broad career types and the specific representing

particular careers or jobs that graduates typically obtain. For example, civil engineers in Texas developed a general career map that identified the different sectors in which civil engineers are employed—government and public works, graduate programs, the Army Core of Engineers, and construction firms. In this example, the career pathways were defined as sectors in which civil engineers are employed and gave students a sense of the diverse fields in which they can use their degrees. Similarly, the work of the MHEC teams identified above resulted in similar descriptions of the various industry sectors employing graduates in marketing or psychology.

The focus on specific careers rather than general fields has emerged in several Tuning initiatives and as a result of different strategies for gathering data. Both MHEC teams, for example, were able to identify specific types of positions using the two Department of Labor sites. The psychology team produced a degree-specific list of career fields, a resource that identifies what career options are open to holders of different degrees. The marketing team, on the other hand, developed a list of different "career opportunities" specific to sub-areas of the field, listing different positions and salary ranges. In contrast, some Tuning initiatives have seen faculty participants attempting to identify and contact alumni about their career trajectories. Challenges have emerged for some faculty in locating contact information for alumni, but when they have been successful, specific data about particular students' experiences has been obtained.

These efforts have often been conducted more individually, with faculty working through their campus alumni relations offices. Similarly, a few faculty participants in different initiatives have reached out to employers who have hired local graduates to discuss not just the career possibilities offered by employers, but also develop dialogue about what a program's degrees prepare students to do. As is likely obvious, this melding of defining career pathways and consultation has enabled information sharing on both sides of the relationship en route to developing career pathway information.

In grappling with the challenge of identifying career pathways, discipline teams have encountered two key questions: What is the scope of the career pathways mapping, and; What means are used to determine such alignment?

Modes of Working

In many of the Tuning initiatives, there have been moments of frustration among faculty participants regarding how work is conducted. To some extent, this owes to the modes of working in Tuning initiatives having been largely assumed, with less explicit planning behind them. To some extent the different modes have to do with assumptions about the nature and purpose of the work and, perhaps, the motivating factors. At one end of the spectrum is linear processes, and at the other is recursive processes. Recall the above examples of the Montana initiative, in which facilitators marched participants through a process of creating a discipline core and the earlier observation by historians who described Tuning as "messy." Montana functioned in an extremely linear mode, while history had a much more recursive process. Most initiatives are a blend, a middle space on a continuum, with linearity on one end and recursivity on the other.

In each project, some faculty have preferred a linear approach while others have embraced a more recursive and meandering approach. Those two

distinct modes of operating correlate to three subsequent binaries that mark the different ways of working. First, Tuning initiatives have tended towards being either task-driven or creatively engaged. In task-driven projects, faculty participants are focused on completing different stages of the process by given dates. More creatively engaged initiatives have tended to be exploratory, with faculty participants trying out a variety of different strategies, phrasings, and versions of documents, sometimes synthesizing these in a final process.

Creatively engaged processes tend, also, towards responsive approaches, rather than provisional ones. The responsive approaches often see faculty teams producing a variety of draft documents submitted to different stakeholder groups for iterative feedback, which drives ongoing, repeated revisions. Task-driven initiatives produce provisional documents that have normally been submitted as a complete package for review and subsequent revision. This type of approach has preferred delayed interaction with outside reviewers or stakeholders, as opposed to the creatively engaged groups, who have preferred dynamic exchanges, in which documents are never seen as fixed. In practice, most groups have worked some place in the middle of these, but observing the poles of each continuum may be valuable in developing a working environment that facilitates a comfortable experience for a larger number of participants. One means of making such determinations is to begin any process by establishing meeting norms that define the mode of working preferred by the groups involved, recognizing that, perhaps, different parts of the process may incline towards one or the other pole.

Meaningful Engagement with the Document

Discipline core documents, when utilized in a local department, do not function as prescriptive descriptions of the outcomes and learning that departments in a discipline must work towards. Discipline core documents and the degree level outcomes they include serve as reference points that spur reflection and collaboration among colleagues both within and beyond a given program. Too often, outcomes have been perceived as static statements that govern compliance-driven assessment processes. Tuning, as well as the DQP, has generated a very different approach to the assessment of learning and program effectiveness.

The essential ingredient to reformulating cultures of assessment, at least as those involved in Tuning have demonstrated, is a commitment to ongoing conversation among faculty colleagues, with the recognition that teaching within a degree program is inherently collaborative. While individual faculty may hold primary responsibility for particular courses in a curriculum, it is the sum total of a student's experience through the entire curriculum that enables them to attain the learning identified in the outcomes statements. Individual faculty are, therefore, collaborating towards that end even if they are alone in their own classrooms. Conversation in an ongoing, exploratory manner enables the sense of shared investment in student success to emerge.

Those conversations have typically begun in mapping processes. Jankowski and Marshall (2017) have argued that mapping of outcomes has served limited purposes and suffers from the same compliance-driven mentalities

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about assessment that fuel faculty frustration and resentment with it. Tuning initiatives have fostered approaches to mapping that are collaborative, reflective, and impactful. Because discipline core documents are not intended to be prescriptive, mapping to the outcomes they offer has typically entailed reflection about the degree to which existing program-level outcomes align to those in the discipline core, where and how frequently those outcomes are addressed in the curriculum, the different pedagogies used to help students develop their learning, and how assignments help faculty in the program to both ascertain the degree of student learning and the effectiveness of the program's design. When framed in this way, working with discipline core documents in a home department reorients assessment to faculty development.

Some programs have taken their work with discipline core documents and the degree specifications that emerge from that work to begin development of resources for a variety of different campus stakeholders. For example, Utah State University's History Department produced a brief guide to the major (http://history.usu.edu/files/uploads/history_advising/Sum15-Sp16.pdf) that has proven useful not just for communicating the nature and value of degrees in history to students, but also to academic advisors and career center personnel. Engineers in Texas, similarly, produced course-taking pathways that enable students to complete prerequisites strategically to complete degrees in four years. Business faculty at the University of Louisville discovered redundancies in their offerings and revised their curricula accordingly so that students were better equipped to undertake majors that were aligned to the learning prioritized by the faculty and to the identified needs of the workforce. Each of these examples—and these are just a few—derive from an emphasis on ongoing reflection about how the program works to provide students with coherent learning experiences that build on one another over time. Collaboration is essential to doing so.

While individual faculty may hold primary responsibility for particular courses in a curriculum, it is the sum total of a student's experience through the entire curriculum that enables them to attain the learning identified in the outcomes statements.

Final Thoughts

The collaborative and consultative approaches that define Tuning as a flexible methodology situate it within a shifting terrain of higher education in the United States. While all disciplines and fields have tended to be responsive to changes in their domains of study, Tuning has prompted faculty to think more broadly about the circumstances to which they need to be responsive.

Among the benefits that accrue by engaging in this kind of reflection and work, three are worth highlighting. First, faculty and staff are better equipped to respond to questions about the meaning of degrees in particular fields and disciplines and their relevance to other contexts (whether professional, civic, or personal). That is an important benefit, because higher education has struggled in recent years to communicate clearly the value of the degrees it grants, and some legislators have been all too eager to lament the state of U.S. higher education. In short, Tuning equips faculty to advocate for higher education.

Second and related, faculty and staff can make transparent the expectations and learning challenges set for students. Doing so stands to benefit all

students, but offers a disproportionately positive impact for at-risk and underrepresented populations.

Finally, faculty engaging in work such as this are better able to construct intentionally coherent learning experiences for students. Curricula (and co-curricula) that cohere enable students to make connections across general education and majors, as well as across the individual classes that comprise each.

If, as research suggests, transference of knowledge from one space to another is the greatest challenge for learners, then curricula constructed in this way can facilitate student learning in making that transference. The important result of that potential is the nurturing of nimble thinkers who are able to apply their learning in diverse environments as they engage in life-long learning.

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For additional documents on Tuning, please visit: http://degreeprofile.org/document-archive/

Appendix A: Tuning Projects in the United States

Since 2009, eight states and two national associations have participated in Tuning initiatives, with 21 total disciplines represented. Five disciplines have been 'tuned' multiple times in different initiatives, including Biology, Business, Chemistry, Education, and History. The factors motivating the selection of particular disciplines have ranged. States have selected disciplines that were perceived as "high demand" for undergraduates in some cases; in other cases, states selected disciplines that were perceived to have highly regimented courses of study. In each instance, concerns regarding transfer between institutions has been a driving factor, and Tuning was seen as a means of basing transfer on actual student learning rather than proxy measures.

Pilot Initiatives (2009-10):

In 2009, Lumina Foundation convened representatives from state offices of higher education and faculty from different disciplines to introduce Tuning as a pilot project. Indiana, Minnesota, and Utah undertook the pilot initiative. Indiana undertook three disciplines, History, Chemistry, and Education, while each of the other two states 'tuned' two disciplines. In Minnesota, faculty worked on Biology and Graphic Design, while faculty worked on History and Physics. Utah has since expanded initiatives to include Physics Education and Math Education as related but distinct fields of study.

Subsequent State-Based Initiatives:

Following positive responses and results of Tuning, Lumina Foundation made grants to other states to undertake Tuning initiatives. Texas, by far the most ambitious state, took up 12 disciplines between 2010 and 2012, focused on applied sciences. Convening four disciplines at a time, Texas addressed Civil Engineering, Chemical Engineering, Biomedical Engineering, Electrical Engineering, Industrial Engineering, Mechanical Engineering, Biology, Chemistry, Mathematics, Business, Computer Information Systems and Sciences, and Management Information Systems. Kentucky joined Texas later in 2010, tuning disciplines across a range of traditional academic divisions: Biology, Business, Education, Nursing, and a combined group from Social work and Human Services. As Texas was winding to a close, the Midwest Higher Education Compact received a grant to attempt a multi-state initiative for Marketing and Psychology which included three of its member states, Indiana, Illinois, and Missouri. Montana rounded out the state initiative by reallocating remaining grant funds to address Business.

National Association-Sponsored Initiatives:

As state-based projects continued, Lumina Foundation determined to explore the potential for Tuning at a national level through disciplinary associations. Two disciplinary associations undertook Tuning to encourage deeper reflection about teaching and learning in the discipline and as a means of fostering conversation about the meaning and value of degrees in their disciplines. Those conversations were deemed important, given the increasing pressure on higher education to demonstrate its effectiveness and value. The American Historical Association began work in 2012 and has continued its efforts consistently since, revisiting and revising the discipline core document based on those subsequent efforts. The National Communication Association undertook Tuning in 2014 and released its discipline core document in late 2015. Since then, NCA has produced support materials and is fostering work at the local level.

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