

# Working PAPER

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## **Community Colleges and the New Era of Work and Learning**

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**ABSTRACT**

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Changes in the credentialing market have produced a complex, multilayered ecosystem with a demand for shorter credentials that are focused around job market competencies. Community colleges are well positioned to lead this emerging market for three reasons. (1) Their dual mission to offer both traditional degrees and workforce development programs provides a competitive advantage in piloting and implementing many of the new types of credentials, especially those that can be embedded into traditional degree programs. (2) They have a long history in awarding certificates, one type of shorter work-aligned credential that is experiencing a new emphasis in today's market. (3) They have an established infrastructure, content knowledge experts, and employer relationships that can support a broad array of shorter credentials with a solid level of quality assurance. To play a central, even leading role, in the new credentialing market, community colleges must build credentials that respond to four growing trends and imperatives: building competency and market-oriented programs, structuring credentials to facilitate lifelong learning, unbundling learning in traditional degrees, and recognizing the need for quality assurance.

Postsecondary education is entering a new era of increasingly work-integrated learning that is shaped by growing student and employer demand for new types of professionally aligned credentials (Maxwell, Joyce, Herz, & Edwards, 2017; Gallagher, 2016). Community colleges are well positioned to become leaders in providing credentials in this new era. Indeed, the role of community colleges in work-aligned credentialing is increasingly recognized by policymakers, foundations, and industry groups, all of whom have championed shorter credentials—often referred to as “microcredentials”—that can help focus education around the employability of their holders. These credentials are seen as both an alternative to traditional degrees (such as associate or bachelor’s degrees) and supplements to them because they help ensure that learners have developed the competencies sought by employers. Such credentials include certificates, industry certifications, and digital badges—an indicator of a skill or accomplishment that can be displayed, accessed, and verified online. Emerging microcredentials frequently use technology to improve access to materials for learners and to provide information about the competencies of credential holders. To help consistently communicate the development of this market, we include a glossary of frequently used terms at the end of this paper.

## **I. ADVANTAGES COMMUNITY COLLEGE HOLD IN THE NEW CREDENTIALING MARKET**

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At least three core reasons place community colleges in a position to lead the emerging market for shorter, more work-aligned credentials. First, community colleges’ dual mission to offer both traditional degrees and workforce development programs provides a competitive advantage in piloting and implementing many of the new types of credentials, especially those that can be embedded into traditional degree programs. This dual mission has provided opportunities for learners to build both workplace and academic skills as community colleges work with industry partners to develop workforce training programs that lead to certificates or certifications (Carnevale & Desrochers, 2001; Grubb, 1996; Hall-Ellis, 2016; Van Noy, Jacobs, Korey, Bailey, & Hughes, 2008) and embed newer credentials such as digital badges into existing coursework.

Second, community colleges have a long history in awarding certificates—one type of microcredential that is experiencing a new emphasis in today’s market. Public community colleges awarded 65% of the for-credit certificates issued by American colleges and universities in 2015–2016 (National Center for Education Statistics, 2018a), and the number of certificates awarded below the associate degree level increased 70% between 2001 and 2016 (National Center for Education Statistics, 2018a). The increased demand for certificates may be driven, in part, by the \$2,000 to \$3,000 annual earnings gain they produce (Belfield & Bailey, 2017). Much of the earnings increase is driven by increased employment rates (Dadgar & Trimble, 2015) and by the field of study in which they are awarded (Jepsen, Troske, & Coomes, 2014). In addition to these for-credit certificates, the market for noncredit certificates is booming due to the growth of online course platforms (such as Coursera, Credly, and edX) and coding boot camps (intensive programs in software development). Together they fuel the attainment of millions of noncredit certificates each year (Gallagher, 2016). As of 2016, nearly 1 in every 10 American adults (8%) held a certificate from a postsecondary institution (Cronen, McQuiggan, & Isenberg, 2017).

Heterogeneity exists in the type of certificates offered by community colleges, in part, because they can award both academic and workforce-oriented learning—spanning the noncredit

and for-credit domains. Academic certificates provide credits that count toward both the certificate and degree requirements and have the potential to provide learners with progression toward a degree by becoming the “first rung on the ladder to a college degree” (Carnevale, Rose, & Hanson, 2012, p. 35). While these credit-bearing certificates offer learners a way to advance within traditional educational institutions, the workforce-oriented certificates often provide working-learners with a way to advance in the workplace (Van Noy et al., 2008). These certificates generally do not provide credit that can be applied toward a credit-based degree, diploma, or other formal award but can be structured to respond quickly to emerging industry needs or tailored to learner and employer needs because they do not need to follow traditional academic guidelines (Haimson & Van Noy, 2004; Voorhees & Milam, 2005). Although they can provide a bridge to college for learners unaccustomed to the college environment (Grubb, Badway, & Bell, 2003), their general purpose is to create career pathways that stand on their own outside the academy. It is also worth noting that the traditional boundaries between noncredit, work-oriented credentials and for-credit credentials and degree paths are increasingly blurring (Gallagher, 2016).

Finally, community colleges have an established infrastructure, content knowledge experts, and employer relationships that can support a broad array of microcredentials that have a solid level of quality assurance. In a market that is being fueled by nontraditional and noninstitutional providers of education—such as coding boot camps, online education start-ups, and employers themselves—community colleges have some advantages, including faculty networks and expertise in instructional design; recognized brands in the community; the stamp of approval of accreditation; and established employer.

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## **II. CREDENTIALS FOR A NEW ERA OF WORK AND LEARNING**

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Historically, employers have relied on traditional degrees from institutions of higher education when hiring and promoting workers. Their confidence in degrees has been driven by their belief that degree holders possess higher-level skills or that degrees signal higher levels of aptitude (Gallagher, 2016). This confidence leads them to reward individuals holding degrees. Unemployment rates for those with a college degree are typically about 1.5–2 times as high as those with a high school diploma (Bureau of Labor Statistics, 2019). Among employed individuals with an associate degree, men received an average 13% wage premium and women a 21% wage premium over those with a high school diploma (Belfield & Bailey, 2017).

The future could look very different, however, with nascent developments in how employers view degrees and how learners can access learning content and attain credentials fueling demand for new forms of credentials. In recent years, employer trust in degrees has eroded somewhat, as many employers perceive a lack of readiness and skills among new entrants to the labor market (Cappelli, 2012) and do not believe higher education is adequately preparing job candidates. Only 11% of business leaders surveyed in 2013 perceived college graduates as ready for work (Weathers, 2014), a statistic that is supported by survey data from the National Association of Colleges and Employers showing relatively few employers rating students as proficient in a number of career readiness areas in 2018 (Wolf, 2018). Many employers are also moving toward competency-based hiring practices that de-emphasize degrees and increasingly consider microcredentials in the job qualification process (Gallagher, 2018).

Perhaps in response to the declining reliance on traditional degrees, three pieces of evidence suggest that microcredentials might be emerging as alternatives to hiring in the workplace. First, a majority of the 750 human resource leaders in a 2018 nationwide reported survey that they see the potential for online microcredentials and digital badges to challenge the role of college degrees in hiring during the next five years, with some certificates and other microcredentials currently seen as solid indicators of specialized knowledge and increasingly used in promotion decisions (Gallagher, 2018). Second, as of 2018, 14% of the human resources leaders surveyed had already hired an individual with a digital badge (Gallagher, 2018). Third, a 2018 analysis of data from massive open online courses (MOOCs) suggests that completing shorter credential programs might produce annual earnings gains of \$2,790 to \$7,820 for those who enrolled in MOOC data science coursework (Hadavand, Gooding, & Leek, 2018).

Learners, like employers, are also increasingly considering alternatives to traditional degrees. Individuals see barriers in pursuing and completing traditional degrees, with those from low-income or minority families more likely than others to face challenges. Challenges include (1) expense: the average annual cost for tuition, fees, room, and board at a two-year institution was \$14,700 in 2014–2015 (National Center for Education Statistics, 2018b); (2) time: only about 28% of full-time students starting at two-year public institutions in 2008 received a degree or certificate within 150% of the expected time for completion (National Center for Education Statistics, 2016); and (3) preparation: 68% of students starting at 2-year public institutions in 2003–2004 took at least one remedial course (Chen, 2016).

As a result of these developments, the credentialing market is no longer exclusively the purview of colleges and universities. The private sector now contains new industry and workforce credential providers who target working-age individuals who lack the credentials needed to obtain employment or demonstrate competency in occupation- or industry-specific skills. These credential providers explicitly prepare participants for in-demand workforce opportunities, often scaffolding education/training offerings and using technology to provide content.

Discussions in 2017 with 26 experts and practitioners in the credentialing field suggest that at least five entities other than institutions of higher education now offer credentials (Maxwell et al., 2017).

1. **Online platform companies, including MOOCs providers**, are creating their own credentials in addition to providing web hosting for courses that can lead to digital badges for existing credentials. Such platforms could provide community colleges with places to create the content for their credentials, with guidance on adapting it to an online platform. Examples include Coursera, Credly, and edX.
2. **Community-based organizations** offer credentials—often badges—as a way to train low-skilled, entry-level workers. For example, the nonprofit [Climb Wyoming](#) works with local employers to design industry-specific training courses for low-skilled, entry-level workers who are mothers. Sometimes programs offer a certificate for successful completion.

***Credential providers outside higher education***

1. Online platform companies, including MOOCs
2. Community-based organizations
3. Employers and industry/professional associations
4. Privately owned and operated companies
5. Local governments

3. **Employers, industry associations, and professional associations** offer certifications for skill competencies in their specific sector (for example, project management offered by the [Project Management Institute](#)). Such credentials often require individuals to pass a test, perform tasks in a controlled setting or show a portfolio of work (Brown & Kurzweil, 2017) as opposed to passing a series of class requirements for a traditional degree. Certifications can be offered in a series of progressive credentials. Cisco's [CENT certification](#), for an example, is the first in a five-level certification process for Cisco products.
4. **Privately owned and operated companies** offer targeted face-to-face courses leading to credentials or short-term programs to prepare individuals for jobs. Boot camps, for example, are short-term, intensive programs (typically 12 weeks but some run 12 months or more) that prepare individuals for jobs primarily in high-demand fields such as software engineering and web and mobile application development. Individuals in [Revature](#)'s 12-week software engineering boot camp, for example, complete job-specific projects and receive a Revature Certified Software Engineer credential upon completion. Increasingly, many of these entities are partnering with institutions of higher education to offer credentials. For example, Butler University's Executive Education Program has partnered with Kenzie Academy, an education and apprenticeship program, to issue [joint certificates](#) for some of its programs. [Trilogy Education Services](#) is offering technology boot camp programs that lead to noncredit certificates with scores of partners at university continuing education divisions, including the University of California, University of Central Florida, Harvard, Yale, Northwestern, and the University of Toronto.
5. **Local governments** often offer badges after program participation or demonstration of a skill. The [Detroit Mayor's Office](#), for example, offers badges to youths in the city's summer jobs program when they demonstrate conflict resolution skills upon completion of their training program.

A particularly pronounced movement is the growth in MOOC-based microcredentials that provide sequences of courses that result in a certification in a specific topic area (Pickard, 2018). Generally speaking, such microcredentials are structured to be completed in less than a year (usually around six months) and cost only a few hundred to a few thousand dollars. Most cover work-related subjects such as business, computer science, and data analysis. While many universities now offer online degree programs, Coursera's Specializations and edX's Professional Certificates are the largest providers (Shah, 2018). Of note, most of these offerings are geared toward individuals with postsecondary training or degrees; this leaves open the market for shorter credentials and programs at the subbaccalaureate level (Maxwell et al., 2017).

### III. IMPLICATIONS FOR COMMUNITY COLLEGES

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Changes in the credentialing market have produced a complex, multilayered ecosystem with a demand for shorter credentials that are focused around job market competencies. A 2017 discussion with 26 credentialing experts and practitioners described the new market as an educational and training Wild West, with providers creating their own credential terms, definitions, and requirements—with few common quality standards being applied (Maxwell et al., 2017).

Community colleges can help structure this market. The new demands from learners and employers for more work-aligned credentials mean that educational credentials can be better integrated into the world of industry-based certifications by working in close collaboration with industry partners and paying careful attention to assessment and quality assurance. Community colleges could, for example, unbundle and deconstruct their current credentials (including degrees) and create new pathways from microcredentials, such as certificates into higher-level degrees. Such actions could also help employed individuals remain relevant in the workplace by learning new skills and technologies throughout their work lives to keep up with the needs of employers.

It is still early for employers to know how to value and interpret the complex array of new credentials (Gallagher, 2018). This means that colleges must pay careful attention to being transparent in the credentials they offer, so that employers can understand what credentials job candidates are presenting and how the credentials compare across institutions and contexts. It also means that during this dynamic period in the job market, which includes changing employer hiring practices, they should seek direct employer feedback and engagement (Abel, Davis, Deitz, & Reyes, 2018).

To play a central, even leading role, in the new credentialing market, community colleges must build credentials that respond to four growing trends and imperatives: (1) building competency and market-oriented programs, (2) structuring credentials to facilitate lifelong learning, (3) unbundling learning in traditional degrees, and (4) recognizing the need for quality assurance.

**Building competency- and market-oriented programs.** Employers' desire for applicants with demonstrated abilities to perform on the job has led to a focus on awarding credentials that reflect and telegraph competencies—what the learner knows and is able to do (Lumina Foundation, 2015). Competencies—as a way to set credential requirements—are understood both in industry and academia and can be applied in multiple contexts, making them a powerful, unifying way to compare the levels and types of knowledge and skills represented by different types of credentials.

Competency-based credentials move away from progression toward and awarding of credentials based on seat time as well as performance. Instead their structure allows learners to progress as they demonstrate mastery of content, regardless of time, place, or pace of learning. Competency-based strategies provide flexibility in the way that credit can be earned or awarded and provide learners with personalized learning opportunities that can include online and blended learning. Framing credentials around clear competencies also better aligns the educational credentials offered by community colleges with the growth of competency-based hiring processes among employers.

Sinclair College, in Dayton, Ohio, provides one example of how colleges have worked with industry—in their case information technology (IT)—to develop skills as a basis for developing competency-based credentials (Person & Thibeault, 2016). The college used the standards that

***Imperatives in the new era of credentialing***

- Building competency- and market-oriented programs
- Structuring credentials for lifelong learning
- Unbundling learning from traditional degrees
- Recognizing the need for quality assurance

the state of Ohio had developed for IT as the basis for developing program and course competencies and developed a stakeholder collaborative process to structure regular engagement with industry and workforce stakeholders to support alignment of the college's IT curriculum with both current and future labor market needs. Concurrently, they began to decouple learning from the academic calendar by offering courses online with rolling starts throughout the regular academic term to provide learners with flexibility in balancing competing time demands or with the potential to accelerate learning or course progression.

**Structuring credentials to facilitate lifelong learning.** A credential that opens employment opportunities at the start of a working career does not necessarily address the need for the continuous acquisition of skills over the course of one's working life: initial skills will need to be updated over and over again during a career lasting decades. Labor market changes are driving this trend. The demand for routine work—which would not require reskilling—is declining (Frey & Osborne, 2017), while new and changing technologies are requiring workers to adapt their skills (Bessen, 2016). Also, the share of temporary workers is growing (Katz & Krueger, 2016), which suggests that individuals will be frequently moving between jobs that could require different types or levels of skills.

Hiring, retention, and corporate training practices may be changing in response to these trends. In the workplace, 64% of the human resource leaders surveyed in 2018 expressed a need for workers who engage in continuous lifelong learning that is gained through both higher levels of education and updated credentials (Gallagher, 2018). Perhaps in response, MOOC platform companies and providers have started to acknowledge their target market as lifelong learners (Shah, 2017). By thinking of education as a “60-year curriculum” in which individuals begin their learning careers in their teens, continue learning throughout their work years, and even continue their education during retirement, community colleges can play an integral role in this expanded credentialing market.

**Unbundling learning from traditional degrees.** The trend toward shorter credentials represents an “unbundling” of the knowledge and skills developed through traditional degrees (Craig, 2015; Staton, 2014). Unbundling is a process by which the knowledge and skills embedded in degrees are broken into components, with a microcredential reflecting only one or a few competencies.

Unbundling is central to both established forms of shorter credentials, such as certificates and certifications, and newer forms of credentials, such as digital badges. Indeed, digital badges have emerged as a new way to indicate an accomplishment that might not be captured in other types of credentials and are often structured in a manner that can help employers understand the knowledge and skills the badge holder has attained. For example, digital badges issued through [Open Badges](#), the prominent way to issue a digital badge, include information about who issued the badge, who the badge holder is, the badge holder's competencies and skills, and the steps taken to earn the credential. Job seekers can display their badges on LinkedIn and other social media sites, thus allowing employers to identify people with needed skills.

The unbundling of knowledge and skills also provides an opportunity to efficiently structure knowledge and skill development by “rebundling” or linking credentials in a deliberate manner and create a career pathway. Such rebundling can allow individuals to:

- **Build a career** by stacking credentials. A credential that can be stacked represents a chunk of knowledge that, when combined with other credentials, represent a key set of skills. Such credentials become part of a sequence that can be accumulated over time to build qualifications and help individuals move vertically up a career path toward greater job responsibilities and potentially higher wages and benefits. For example, a construction worker may be able to move into a managerial position with a project management certification or move into self-employment by building foundation-level business knowledge. Stacking also may enable people to move horizontally across industries, occupations, labor markets, or departments within a company by adding depth to their skills. For example, a computer programmer might learn a new language to apply programming skills in a different environment or in a different programming job with expanded opportunities.
- **Build a degree** by latticing credentials. Latticed credentials are interwoven into degrees (or other credentials) in mutually supporting ways. Learners might make educational progress toward multiple certificate or degrees simultaneously. For example, at some community colleges learners who are studying either industrial systems technology or biotechnology to can earn credits that apply toward certificates in both areas and that can be applied toward an associate degree in engineering technology.

**Recognizing the need for quality assurance.** The expanding diversity of credential providers and credentials makes it difficult for employers to know which ones have provided the individual with the knowledge, skills, and abilities that they are looking for in workers. As a result, they may lack confidence that the credentialed job seeker actually has the skills to do the job, without some assurance of quality or a trusted relationship with the provider.

The plethora of providers has also produced a patchwork in quality—with only some credentials embedding a quality assurance process and those that do varying substantially in their procedures. Third-party quality assurance provides a credential with credibility and demonstrates to the profession, employers, and credential seekers that the program has met a set of objective standards. Federal regional accreditation often provides assurance that the credits and degrees received at colleges and universities with accreditation meet minimum well-known standards (McCarthy, 2014). The [International Certification Accreditation Council](#), the [American National Standards Institute](#), and the [Institute for Credentialing Excellence](#) currently serve as the largest quality assurance providers for nondegree credentials. Typically, however, microcredential providers provide no assurance of quality or robust data on features, costs, enrollment, and outcomes (Brown & Kurzweil, 2017). The result has left stakeholders in the credentialing ecosystem unsure about how to assure quality education, training, and credentials.

#### **IV. DEVELOPING CREDENTIALS IN THE NEW MARKET**

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An upcoming volume of *New Directions for Community Colleges* (Maxwell & Gallagher, in press) will explore the changing terrain of credentials and the ways in which community colleges might respond to them. This collection of papers will discuss innovative tools that community colleges have adopted to better align credentials with evolving student and employer needs. Three papers provide case study examples of how colleges have unbundled curricula to allow for the offering of alternative credentials based on mastering specific competencies and not dependent on seat time and how those credentials might be used as stepping stones in lifelong

learning. Case studies discuss how community colleges (1) have used shorter credentials to help students build career pathways; (2) might work with employers who have developed certifications to integrate credentials into course programs, thereby enabling learners to obtain industry-recognized certifications as part of their degree; and (3) have partnered with industry associations to develop certifications in in-demand, entry-level jobs and corresponding curriculum that allows learners to develop the knowledge and skills needed to obtain them. One paper tackles the issue of quality assurance, discussing how community colleges might meet the challenges of credential transparency and quality. Another takes a futuristic perspective and helps community college leaders and practitioners to create a vision for entering the microcredential market or expand their role in offering these credentials. Together these papers will provide community college leaders and practitioners with a vision for the role they might plan in the new credentialing market and with examples of how this vision might be carried out.

## GLOSSARY

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Term	Definition
<b>Alternative credential</b>	Credentials other than degrees (for example, an associate or bachelor's degree)
<b>Badge, including digital badges</b>	A form of credential issued by an organization to an individual to signify that person's achievement at some level of competency. Digital badges are housed and managed online and are both an assessment and credentialing mechanism because they make visible and validate learning in both formal and informal settings.
<b>Bundling and rebundling</b>	A process by which degrees are broken down into components, with the resulting credential reflecting only one or a few competencies. Individuals can rebundle or link credentials in a way that allows them to stack or lattice credentials to build a career or to gain a larger credential.
<b>Career pathway</b>	Approach that connects progressive levels of education, training, support services, and credentials for a specific occupation in a way that optimizes the progress and success of individuals with varying levels of abilities and needs. The approach helps individuals earn marketable credentials, engage in further education and employment, and achieve economic success.
<b>Certificate</b>	A form of credential awarded upon the successful completion of a brief course of study, usually one year or less. Certificates are typically awarded primarily in institutions of higher education, university extension programs, or nondegree-granting postsecondary institutions, such as area career and technical education schools.
<b>Certification or professional certification</b>	A form of credential awarded by an assessment and validation of knowledge, skills, and abilities to perform a specific job by a business, trade association, or other industry group. Certification is generally a time-limited credential that is renewed through a recertification process.
<b>Competency</b>	The capacity to draw upon and apply a set of related knowledge, skills, and abilities to successfully perform a work role, function, or task.
<b>Credential</b>	An umbrella term that describes a document that attests to the achievement of specific learning outcomes or to a defined level of knowledge or skill relative to a given standard.
<b>Latticed credentials</b>	Credentials that are interwoven with each other in mutually supporting ways (for example, educational progress toward a license and a degree simultaneously).
<b>License</b>	A credential awarded by a government agency that constitutes legal authority to do a specific job. They are time limited and must be renewed periodically, often requiring continuing education courses or other professional development activities.
<b>Learn by doing or experiential learning</b>	The process of hands-on learning, often in combination with having the learner reflect on the learning that has occurred while undertaking the activities.
<b>Lifelong learning</b>	The use of both formal and informal learning opportunities to continuously develop and improve the knowledge and skills needed for employment and personal fulfillment.
<b>Market-oriented credential</b>	A credential in which the curriculum and requirements for its attainment are structured to meet the needs of employers or the labor market.
<b>Microcredential</b>	A credential that shows a mastery of one or more job competencies. Microcredentials are more specialized and focused than a traditional academic degree.

Term	Definition
<b>Nested credential</b>	A credential that is a subset of or embedded in other credentials, such as a badge or a certification as part of a degree.
<b>Nondegree credential</b>	A credential that does not carry credits that can be applied toward a degree.
<b>Proficiency</b>	A certain level of achievement. It is sometimes expressed as the level of achievement considered passing (for example, 60 percent) but in which a higher level of achievement (for example, 85 percent) is required for mastery and progression through a program.
<b>Prior learning assessment</b>	The evaluation and assessment of an individual's learning for college credit, certification, or advanced standing toward further education or training.
<b>Portable credential</b>	A credential that can be used in a variety of environments.
<b>Seat time</b>	Time-based educational requirements measuring student time in classes. It is often used in conjunction with the term <i>credit hour</i> .
<b>Stackable credential</b>	A sequence of credentials that can be accumulated over time to build qualifications and help individuals move along a pathway toward further education or different job responsibilities.
<b>Traditional credential</b>	A time-based credential (that is, degree) where learners generally all follow the same progression of activities.
<b>Transparency</b>	Being easy to understand and compare. Information about the credentials and their value is readily available to earners, issuers, endorsers, and consumers.

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Note: Definitions are adapted from Lumina Foundation (2016), National Center for Education Statistics (n.d.), and American Council on Education and Blackboard (n.d.).



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