Elements, Principles, and Critical Inquiry
for Identity-Centered Design of Online Environments

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Abstract: Within higher education, a need exists for learning designs that facilitate education and support students in sharing, examining, and refining their critical identities as learners and professionals. In the past, technology-mediated identity work has focused on individual tool use or a learning setting. However, we as professional learning designers sought to explore designs that support critical identity processes across various learning contexts, media, and tools. We have identified the recurring and intertwining themes of visibility, agency, community, competencies, and narrative based on a literature review and professional practice. Along with the exploration of these themes, a design framework that encompasses a set of identity-centered design elements and principles is presented along with self-reflective critical questions intended to aid in design, development, and implementation of online collaborative learning environments. This framework is then applied to a case study to demonstrate how the elements, principles, and critique can be used to understand and evaluate new and preexisting designs.

Keywords: identity, learner analysis, instructional design, inclusive design, community identity, case study.

Résumé : Dans l'enseignement supérieur existe un besoin de conceptions de l'apprentissage qui facilitent l'éducation et soutiennent les étudiants dans le partage, l'examen et l'affinement de leurs identités en tant qu'apprenants et professionnels, identités définies comme critiques car prises en compte selon une approche de la sociologie critique. Dans le passé, le travail de médiation technologique de l'identité s'est centré sur l'usage individuel d'outil ou le cadre d'apprentissage. Cependant, en tant que professionnels de l'ingénierie pédagogique, nous cherchons à explorer des conceptions qui soutiennent les processus d'identité critique dans différents contextes d'apprentissage, médias et outils. En nous fondant sur une revue de littérature et sur la pratique professionnelle, nous avons identifié différents thèmes qui apparaissent de manière récurrente et sont souvent entrecroisés tels que ceux de visibilité, organisation, communauté, compétences, et récit. L'exploration de ces thèmes s'accompagne d'un modèle d'ingénierie pédagogique englobant un ensemble d'éléments de conception centrée sur l'identité et de principes allant de pair avec un questionnement réflexif critique visant à favoriser la conception, le développement et l'implémentation d'environnements collaboratifs d'apprentissage en ligne. Ce cadre est ensuite appliqué à une étude de cas pour montrer comment les éléments, principes et l'approche critique peuvent être utilisés pour comprendre et évaluer les conceptions nouvelles et préexistantes.

Mots-clés : identité, analyse de l'apprenant, ingénierie pédagogique, conception inclusive, identité communautaire, étude de cas

Introduction

From a professional standpoint, the role of the learning designer is changing, and designers are taking on leadership roles in conversations around ethics and equity (Moore, 2014). As learning designers, we are intermediaries between departments, faculty, and students, and are uniquely situated to be advocates for diversity and culturally responsive pedagogies (McLoughlin, 2001; McLoughlin & Lee, 2010; Parrish & Linder-VanBerschot, 2010; Young, 2008a, 2008b). In our own positions as online learning designers at a large public university, we collaborate with faculty to

design, build, and implement online courses. Our students most often work asynchronously, are geographically displaced, and vary greatly in age and professional and academic experience. We have found in our practice that learning designers are in need of frameworks to explore and support critical identity processes. This includes a design repertoire that not only encourages and facilitates learners to bring their multiple, competing, and diverse identities with them to the virtual learning space, but also affirms them when they do.

In our own context of online higher education, questions and concerns around identity are particularly intriguing. The interplay between learning identity as a pivotal lens and the larger holistic identity is a strong tradition within adult education and lifelong learning (Erstad & Sefton-Green, 2013): "People must become individuals through constructing or reconstructing their own biographies and life courses" (Glastra, Hake, & Schedler, 2004 p. 294). The college years serve as a time for experimentation, hence the old adage, "give it the old college try." Yet this time becomes the site of identity crystallization, stabilization, and social maturation—"I am such-and-such major," or "I am this-or-that type of person." Lobman and O'Neill (2011) in their exploration of play and performance observed that once people reach adulthood, they tend to relate to individuals as a particular kind of person or someone with a particular fixed set of skills. This mindset leads to narrowly scripted roles for individuals that limit expectations of themselves and others: "In school and in the workforce people are rewarded for who they are and what they know how to do, not for who they are becoming" (Lobman & O'Neill, 2011, p. 10). This concept is of particular consequence for our own online learners, the majority of whom are students 25 years old or older and who are often full-time working professionals and caregivers.

Adult learners bring a rich array of experiences and perspectives, yet due to life commitments and lack of an embodied presence, they often encounter fewer opportunities than their in-resident counterparts to experiment, explore, and build relationships through institutional channels. Often, this lack of embodied presence at a campus, in front of faculty, or in front of institutional decision makers can lead to misconceptions of what and who we "think" these learners are.

By building identity-centered principles into designs, another layer of feedback for learner analysis is created. Stefaniak and Baaki (2013) argue that designers must dig deeper than just understanding *what* learners are, for example, demographically and statistically, but also understanding *who* they are in a more nuanced and intentional multi-layered learner analysis. As an alternative to niche or exhaustive learner analysis, Parrish (2014) argues in his article "Designing for the Half-Known World: Lessons for Instructional Designers from the Craft of Narrative Fiction" that instead of questioning data, learning designers might try accepting the half-known nature of the learning experience and "use it to make their designs more expansive, to create compelling learning experiences that draw in students no matter what their definable learner characteristics might be" (p. 262). Here, we argue that across both approaches, learning designers are uniquely positioned by both training and institutional placement to be empathetic advocates who understand and design for learners' identities.

Identity as a Theoretical and Design Framework

Much of this conversation is rooted in sociologist Erving Goffman's (1959) work on identity construction as a series of performances subject to context (e.g., audience, place, etc.). Individuals conform to their expected roles in a formal way (front stage) but also carry on nonconforming (back stage) personae; the management of these performances is referred to as dramaturgy (Goffman, 1959).

The advent of the interactive web and mobile devices blurred Goffman's stages and rekindled interest in identity and its expression through platforms such as blogs, wikis, and social networking sites. Early studies around technology and identity included multi-user games (Turkle, 1995, 2005) and personal web pages (Papacharissi, 2002). Interactive technologies, especially in terms of mobile computing, connect humans and non-humans in distributed learning contexts, which "removes the solid ground of education as the transmission or construction of knowledge within the constraints set by a curriculum, and replaces it with a cybernetic process of learning through continual negotiation and exploration" (Sharples, Taylor, & Vavoula, 2007, p. 22). Therefore, it is essential that learning approaches take into account multiple discourses, settings, and mediums.

In terms of education and identity, important questions center on meaning making, agency, and narrative (Lewis, Pea, & Rosen, 2010; Mitra, 2004; Erstad & Sefton-Green, 2013). Gee (2000) calls for identity to be used as an analytical lens in education by extending ideas of performance and context into a framework of four discourses: institutional, dialogic, affinity, and natural. Each identity describes a context-specific process that is legitimized by a power within a community or environment. Authorities within institutions or formal organizations such as governments, schools, and workplaces authorize institutional identity. Affinity groups share in the practice and values of the informal group, and dialogic identity is recognized in the discourse with others. Finally, the natural identity is developed from forces in nature such as gender, race, or able-bodiness. "It is crucial to realize that these four perspectives are not separate from each other. Both in theory and in practice, they interrelate in complex and important ways. Rather than discrete categories, they are ways to focus our attention on different aspects of how identities are formed and sustained" (Gee, 2000, p. 103). Sfard and Prusak (2005) critique Gee's definition of identity as lacking agency and fluidity, instead offering identity work as mainly the act of narrative creation. Schwalbe and Mason-Schrock's (1996) identity work focuses on the actual process that is mediated and negotiated within groups, and they conceptualize identity work as being composed of four major processes: defining, coding, affirming, and policing. According to this framework, identity is defined when it emerges through creation and social representation. The rules and markers for signification are then provided through coding, while the process of affirming encompasses performance and validation through community or social legitimization. In the final process, identity is policed through the protection and/or enforcement of the signifying code.

What emerges from both Gee's framework and Schwalbe and Mason-Schrock's framework is that identities are overlapping, entangled, and challenging—within the field of education, identity matters can be just as stifling and detrimental as they can be affirming and positive. For example, the concept of identity policing could maintain or enforce the hegemonic coding of institutional norms that contributes to learner inequity. At the same time, these processes of defining, coding, affirming, and policing can create a constructive basis for understanding our own embedded beliefs, values, and self-representation in our designs. These four identity processes from Schwalbe and Mason-Schrock, whether positive or restrictive, taken together with Gee's conceptualization of multiple dialogic identities that change across settings and in response to different forces, provide designers with a basis to think, discuss, and design for learning, especially across learning contexts.

Education's current imperative is to empower people to direct their own learning across multiple settings and throughout their lifetimes (Sharples, 2000). Developing the lifelong learners of tomorrow is difficult since it is preparing them for the unknown, yet "identity talk makes us able to cope with new situations in terms of our past experience and gives us tools to plan for the future" (Sfard &

Prusak, 2005, p. 11). Although learner identity has a wide and robust body of theory and research within education, the professional fields of learning design, instructional design, and educational technology are still in the nascent phases of theorizing about the interplay of identity, ethics, and design as part of our training, practice, and learner advocacy. Learners need access to rich transactional spaces to support their identity work and build their 21st century literacies, artifacts, and values of digital citizenship (Greenhow & Robelia, 2009). Therefore, designers and educational technologists are uniquely positioned to create, improve, and evaluate such environments.

Identity is also an important lens for educational technologists, especially when conversations around technologies primarily emphasize the "economic utility" of tools for speed or efficiency rather than learning (Amiel & Reeves, 2008). Conversations around learner-centeredness within online or technology-mediated environments are often limited to content, delivery method, and learning preferences; questions of learner agency are skirted altogether in favor of what Salvo (2001) calls the "ethic of expediency, which often drives technology design" (p. 276).

Therefore, we sought to understand how learners define, code, affirm, and enforce their identities through technologies and within online environments in order to develop an identity-focused design framework. We then used these four processes as the basis for learning designer self-reflection in order to make designs more transparent. To this broad inquiry, we added our own embedded workplace questions, such as what types of technology-mediated practices do our learners engage with in their everyday lives? What biases do we as designers embed into our products and activities?

Methods

In order to understand what the landscape of identity-centered learning design might be, we first examined research that focused on embedded technology-mediated practices, such as blogging, gaming, interacting through social media, creating digital media, engaging in professional networking, and completing informal professional development. By looking to these practices, designers can leverage them to create more engaging and transformational learning opportunities in both online and traditional settings. We build on this examination and include themes we found in learners' use of embedded technology and our own professional practice to present a set of elements and principles in identity-centered design. Since it is important for designers to consider their own perspectives and situations in order to effectively apply these elements and principles, we developed self-reflective critical questions to aid in design, development, and implementation of technologically-mediated collaborative learning environments. Lastly, we considered a design case study and used the identity-centered design framework to discuss the design rationale, potentials, and challenges.

Literature Review

Identity is a dynamic process of reflection, performance, and participation; as such, it must be understood as "something we do, (identification with) rather than simply something we are" (Buckingham, 2007, p. 8). Therefore, what we do with our technology becomes a pivotal lens of inquiry. Our inquiry focused on understanding technology-mediated identity practices across platforms and age groups. In keeping with Gee's multi-discourse approach to identity, we sought studies that looked at formal and informal educational settings, after-school clubs, and affinity spaces within professional contexts. We grouped the results of our review in three categories: playgrounds,

digital social networks, and the workplace. First, playgrounds were used to explore affinity and informal and exploratory practices. Next, participation and production focuses on learner-generated content and digital media social networks were used to concentrate on participation and production. Finally, the professional and workplace landscape was used to explore how professionals use social media to connect with others, promote themselves, and engage in professional training and workplace practices.

Playgrounds and Performance

The activities explored in this section center on the themes of learner agency and fluid identity processes through play. Kafai, Fields, and Cook (2009) explored young learners' agency in an online gaming environment through the creation and personalization of their virtual self or avatar. These researchers used the gaming environment of Whyville to focus on the popular activity of face-work (a nod to Goffman), which involves learners designing and updating their avatars by collecting virtual currency to buy "face-parts" at a virtual store within the game. From their observations and interviews, the researchers found that the virtual avatars were an expression of individual agency. A secondary agency—that of the social structures—also motivated many players to choose looks that kept up with fads in the online community.

Appearance (both literal and figurative) was another important theme—players could choose to enhance or to hide their real identity in order to spy, lurk, or fool other players. Instead of presenting their idealized appearance in real life, learners used avatar representations that were more artistic, dynamic, and social. Kafai et al. (2009) suggest that online spaces like Whyville are best described as "identity playgrounds"; spaces that support "fluid notions of virtual identity" in which changes are made incrementally (p. 8). In these spaces, users engage in activities similar to Turkle's (1995) notion of "identity workshops." Avatar-based activities in Whyville developed through an improvisational role-playing approach, rather than through sustained role development as found in Dodge et al.'s (2008) observation of children's activities in an immersive multiplayer game project called Quest Atlantis. This project situates learning and participatory practices with an embedded narrative. The case studies that emerged followed children through their game play as they manifested different agencies and formed identities that often were rooted in their real-world interests.

Elements of playfulness, fluidity, and mash-ups found in game play and social media can be described in the concept and application of "playgrids" by Hollett and Kalir (2017), which they define as learners combining social media tools in order to collaborate across settings where they can express their interests and make their learning more personally meaningful. In their study, Hollett and Kalir (2017) used tools such as Slack and Hypothes.is for online collaboration in graduate-level coursework and utilized the flexibility and informality of the tools to develop playful and intimate working spaces.

Participation and Production

This section focuses on participation, tools, and practices around digital media consumption and creation, such as collaborating, sharing, and critiquing digital artifacts that give rise to identity processes. Traditionally, formal schooling has placed more emphasis on critical analysis than production in terms of literacies and media (Buckingham, 2007). However, shifts in pedagogy, such as constructivism (Kafai et al., 2009), learning by design (Kolodner et al., 1998), participatory culture (Boyd, 2007), and user-generated media (Shao, 2009) are reshaping learners' literacies and modes of

expression (Buckingham, 2007; Hull & Katz, 2006). Lewis, Pea, and Rosen (2010) suggest that learners, especially youths, engage in identity processes through cycles of reflection and creation, and by collecting feedback from their communities.

Like Whyville's avatars, blogging provides learners with agency and visibility that is shaped by both individual agency and social norms of the community. Blogging has been identified as a powerful tool for metacognition, self-direction (Sha, Looi, Chen, & Zhang, 2012), and knowledge brokering (Boland & Tenkasi, 1995). Luehmann's (2008) investigation of one K–12 educator's identity formation through blogging is viewed as a study in both professional and personal development. The teacher's identity as a reform-minded science teacher was grounded in the participation and recognition of being a reform-engaged teacher: community building was the most salient theme within the teacher's posts and activities, such as sharing resources with colleagues and mentoring. In terms of collaborative learning communities, identities can "capture the ways that learning settings can support or fail to support not just the acquisition of skills and knowledge but also a deep sense of connection with participants" (Nasir & Hand, 2008, p. 176). Within online learning communities, identity can be employed as a way for group members to share their tacit knowledge (Öztok, 2016).

When faced with identity categories such as teacher, female, science-loving, or Mexican-American, individuals bring various and sometimes competing identities into online discourse and "utilize their different identifications under different circumstances for different reasons" (Öztok, 2016, p. 181). Therefore, identity trajectories influence the nature of the discourse and shape the process of knowledge construction. This influence can be particularly powerful within constructivist and computer-supported collaborative learning (CSCL).

Research has focused on communities that use specific tools such as Twitter, LinkedIn, and Facebook (Marwick & Boyd, 2011; Papacharissi, 2011; Zhao, Grasmuck, & Martin, 2008), but learners also use and interact with each other across multiple platforms (Carter & Grover, 2015). Lampinen, Lehtinen, and Cheshire (2014) adopt Schwalbe and Manson-Schrock's identity framework in their study of learner media choices across multiple information and communication technology (ITC) platforms in a self-described community that was both co-located and online. They argue that researchers and designers should examine how people interact both face-to-face and online as part of daily communication and work routines in order to understand how learners build and maintain identity over time and across overlapping online and offline contexts.

Professional and Workplace Learning

The activities explored in this section range from developing a professional learning community to using social media in order to build an online professional presence. The tools described here can help affirm identities through learner agency by collecting, organizing, and archiving evidence of competencies and reflections. These affirmations in turn can represent richer narratives, which allow learners to explain and connect their skills and experiences. Professional and workplace learning offers rich contexts to understand how people navigate and balance their personal interests and talents with the demands and goals of the workplace. Through their study of teachers' online discourse, Ching and Hursh (2014) approached teachers' interactions at the group level in order to understand their attitudes and practices around integrating new technologies. Within the online forum, motivation and goal setting emerged due to positive peer-to-peer interactions instead of top-down support and high expectations.

Interaction through social media also affects the development of identity in addition to professional learning communities. Veletsianos (2013) gives a reflexive autobiographical account of his initial blog use and Twitter use as a professional academic. Similar to the activities of teacher's individual blogging as described by Luehmann (2008), Veletsianos describes blogging and tweeting in connection with his scholarship, maintaining a professional digital identity (or his searchable identity), and "impression management" (Goffman, 1959). Through the various platforms and audiences, he explored the different nuances of a professional self, concluding that identity and control are the main issues surrounding social media in the workplace.

In order to support professional goal setting and reflection, Oliver, von Konsky, Jones, Ferns, and Tucker (2009) used methods of participatory action research to create an e-portfolio interface that would provide a rich transactional online space where learners could share and test ideas in order to negotiate meaning. Mason, Pegler, and Weller's (2004) study also focused on e-portfolios in an online course where learner choice was the signature design theme. The e-portfolios also provided a way to have students own their personal progress and make learning goals and trajectories visible.

This literature exploration of technology-mediated identity processes and activities, their digital artifacts, and their social resonance generated five interconnected themes: visibility, agency, community, competencies, and narrative. Although this literature review was organized by broad learning contexts, these same themes also spanned learner types: children, higher education students, and professionals. If Schwalbe and Mason-Schrock's identity processes explain what learners do, these themes begin to tease out *how* and in *what ways* defining, coding, affirming, and enforcing may take place.

Analysis of Themes

Visibility. Technology allows us to be seen and shared with great ease. The implications of this ability include searchability or "putting one's self out there" (Veletsianos, 2013) by making artifacts and opinions public (Luehmann, 2008; Cassell, Huffaker, Tversky, & Ferriman, 2006). Visibility is important for defining and enforcing identities. For example, the decision to provide public or private feedback, whether in critique or approbation, is a question of visibility. Other concepts include aesthetics and appearance and representation that can be constructed or personalized, which are central elements in the design and use of avatars, dashboards, and learning pathways. Visibility can also be understood as lacking in terms of anonymity, invisibility, masking, or mirroring. Allowing learners to control their own appearance and ability to be viewed are important forms of visibility as well as agency.

Agency. Agency can be found in discussions of decision making, control (Mitra, 2004), goal setting, personalization, and self-regulation. Similarly, epistemic agency is described by Zhang, Scardamalia, Reeve, and Messina (2009) "as the level of complexity at which a student chooses to approach an issue" (p. 24). Drawing from principles of game design, agency can be construed as learners' movement throughout virtual spaces, allowing for learner choice as to what and how they will fulfill their goals (Dodge et al., 2008), or the level to which learners could be assessed or evaluated. Activities such as controlling one's virtual appearance, selecting tasks, and leveling up represent agency in online game play. Participating in professional communities and social media networking is considered an agentive exercise in shaping and managing one's professional identity. In terms of

ITC, designers can help inform learner agency in selecting tools to use and in what manner, or find the agentive affordances in tools mandated by faculty or the institution.

Community. Learners engage in identity processes through creation and reflection cycles and by collecting feedback from their communities. As demonstrated by professional blogging or online play, learner agency and visibility can be individual or shaped by social norms of the community. Sharing artifacts publicly fosters discourse, perspective taking, and perspective making (Shao, 2009). Core aspects of community identity include belonging to or developing meaningful relationships (Greenhow & Robelia, 2009; Mitra, 2004), collaboration, feedback, digital citizenship (Greenhow & Robelia, 2009), communities of learners, and communities of practice (Ching & Hursh, 2014; Peppler and Kafai, 2007). Activities like synthesizing and articulating group concerns, peer modeling, and facilitated emergent identities could be used to describe collective goals (Cassell, Huffaker, Tversky, & Ferriman, 2006; Ching & Hursh, 2014). Within collaborative environments, identification can be utilized to support diverse ideas rather than the affordances of the technological tool. Identification may allow members of learning communities to both deepen peer-to-peer understanding and create coherence within the group (Öztok, 2016).

Competencies. Competencies are defined by developing new abilities and being appreciated for one's talents (Mitra, 2004). Competencies are central to professional identities in terms of skills, performance or products, assessment, evaluation, and legitimacy (Oliver et al., 2009). In projects such as Quest Atlantis, learners work within a community (both virtual and local) in order to keep commitments by demonstrating competency (Dodge et al., 2008). Even when commitments are not a priority, creators of digital media build up their artistic and technology skills by sharing work with peers: in their blogging activities, teachers articulate newfound confidence in being recognized for their interests. Other activities such as creating e-portfolios enable learners to practice self-reflection in a way that mirrors many of the choices and re-voicing processes found in activities like storytelling and blogging; e-portfolios also can be performance spaces where skills and artifacts can be made public. In terms of community value, competencies can be seen as learners being drawn into communities and the media they produce. Learners experience "collective resonance" when their individual social practices are amplified, such as when a group experience is mirrored in both the media and real word (Dodge et al., 2008). Competencies therefore are central to discussions of new literacies as learners create and consume media.

Narrative. Narrative can be seen as the process of ordering, selecting, and emphasizing discourses, and it includes themes of voice, language, and audience. In terms of technological practices, narratives can take the form of blogs, digital storytelling, or media remixes (Hull & Katz, 2006; Buckingham, 2007). Other themes include perspective taking and making, genre, code switching, and discourse management. Narrative sense making can be a powerful tool in learner self-reflection, as the analysis of narrative can reveal a learner's implicit or explicit scripts of behavior and identification at the individual or group level. Instead of strict identity enforcement or policing, understanding how narratives—personal, professional, or institutional—are put together can be a powerful tool enabling learners to find or add their voice. Narrative is also a robust pedagogical tool that can aid in contextualizing content and competencies.

Findings

We sought to synthesize the themes from the literature into actionable practices for learning designers, technologists, and educators. From the literature, we set forth identity-centered design elements and principles, and we provide a heuristic to aide in the evaluation of learning designs. We also provide self-reflective prompts for designers to understand their own subjectivity within their designs. The main themes determined from the literature—visibility, agency, community, competencies, and narrative—serve as our design elements of identity-centered learning design. These five areas can be used to analyze, compare, and build the virtual spaces, tools, and activities that support identity processes. Each element supports multiple types of identity work, including defining, signifying, affirming, and enforcing, and they can be used across activities, platforms, learner ages, and settings.

Table 1: Identity-Centered Design Elements and Associated Examples

Element	Examples
Visibility	Artifact sharing
	Recognition and reward
	Links to professional profiles, portfolios, personal blogs
	Learner-created and -curated content
	Visible learning pathways
	Opportunities for lurking and periphery participation
	Intentional and thoughtful representation
Agency	Learners feel that they have appropriate information, tools, and time to complete task
	Goal setting
	Learner choice
Community	Cooperation/collaboration
	Shared modes of inquiry
	Social resonance
	Diverse expertise acknowledgment
	Shared practices, beliefs, and values
	Shared modes of inquiry
Competencies	Sequencing, modeling, scaffolding
	Leveling up
	Mode and frequency of feedback
	Performance and participation
Narrative	Authentic tasks and tools of the domain

Next, we adapted Jonassen's (1994) framework on technologies as cognitive tools that enhance constructivist learning environments and used it as the foundation of our identity-centered design principles. These principles are used to organize or arrange the structural design elements of visibility, agency, community, competencies, and narrative through common instructional techniques and practices. We also re-contextualized Schwalbe and Mason-Schrock's identity-work processes by asking how learning activities push learners to articulate what they know and reflect on what they have learned in order to (a) define and refine their identity and support the internal negotiation of meaning making to (b) code or decode signifiers in constructing personal representations of meaning making, which helps to (c) affirm or reject identity and (d) support intentional mindful thinking that enforces or extends identity constructs.

Table 2: Identity-Centered Design Principles Based on Jonassen (1994)

Principle 1. Have learners articulate what they know.

- What can they articulate about themselves (e.g., race, gender, socioeconomic background); their peers or colleagues; their mentors, teachers, supervisors, and heroes; and their own learning habits?

Principle 2. Have learners reflect on what they have learned.

- How is this information constructed?
- How does it fit or not fit into previous knowledge?

Principle 3. Support learner's internal negotiation of meaning making.

- What are the norms of the community that built this knowledge?
- What part of this new knowledge aligns with previous understanding?
- Can dissonance with previous understanding be reconciled?

Principle 4. Have learners construct personal representation of meaning.

- How would you have a conversation about this information with a sibling, an instructor, or neighbor?
- What genres can convey the same meaning or knowledge?
- What combinations of modes (e.g., text, presentation, performance, and visuals) capture and express meaning?

Principle 5. Support learner's intentional, mindful thinking.

- How can you make learning visible?
- In what ways can you display learning paths?
- How can you support learner agency and decision making?

Every design profession needs a heuristic for critique. In our practice, we have found Parrish's (2014) article "Designing for the Half-Known World" extremely valuable, specifically the questions that ask designers and instructors to reflect on their positionality and implicit bias within the design itself; for example, what will learners want to share with family or friends? What part of the instructional

design will learners see as a reflection of your own personality and bias? Revisiting the types of questions that would be involved in developing learner analysis, Table 3 provides examples from both Stefaniak and Baaki's (2013) interview protocol and Parrish's (2014) guidelines. We have added our own questions involved in developing learner analysis based on the framework presented.

Table 3: Questions for Learner Analysis and Design Critique

Who are the learners? (Stefaniak & Baaki, 2013)

- What are the individuals' motivations?
- What are the individuals' attitudes about the subject?
- What expectations do individuals have?

Alternative questions to complement learner analysis (Parrish, 2014)

- What will make learners say, "Wow, I wish I had known that before"?
- What are your learners most likely to forget, misunderstand, undervalue, resist, and fail to connect to?
- What related interest might be triggered in your learners?
- What type of learner might feel disenfranchised?
- What part of instructional design will learners see as a reflection of your personality or biases as a teacher or instructional designer?
- What part of design does reflect your own biases and experiences?

Our questions for identity as a design theme

- What discourses (e.g., institutional, affinity, dialogic, natural) do you ask your learners to draw upon (Gee, 2000)?
- What elements of identity are found in the design's content, tools, or activities, and are they explicit or implicit?
- What are and how will the principles of identity be used to support learning?
- In what ways does the knowledge support learner agency and decision making?
- Are there specific virtual spaces or tools to engage in playful, informal, or formal modes of discourse?
- How will the insight gained by learners feed back into the learner analysis cycle or future designs?
- Will learners encounter believable representations of themselves (e.g., through graphics, stories, scenarios, or experiences)?
- Will the learners encounter others who are dissimilar to themselves (e.g., peers, faculty, stories, representations, and abilities), and will they be aware of this difference?

Case Study

To understand how the elements, principles, and critique can be applied to new or existing designs, we offer a brief case study that used the framework to elucidate the presence and opportunities for identity work.

Badges for Liberal Arts Citizenship Case

The college of liberal arts within Penn State University designed a digital badge program in order to recognize diverse types of learning, support students' reflection, and aid students in making sense of their learning activities and trajectories through the lens of liberal arts values. The Liberal Arts Citizen

Badges were based partly on the college's leadership agenda and represented the thematic liberal arts perspectives of globalism, leadership, initiative, and engagement. The badge design was intended to provide a more personalized and granular view of student experience than a traditional transcript. It recognizes skills and perspectives that are closely tied to values of the liberal arts academic community while remaining unbound from a specific major or field of study. Each perspective was considered a meta-level within which students could earn a series of three to four different types of badges. The badging program was hosted on the college's website and consisted of three layers: the thematic perspectives, the individual activities, and the evidence or student artifact needed to earn the badge. Badges could be earned within a specific theme (deep engagement) or across the various perspectives (diverse engagement). Table 4 provides the overall design and Table 5 provides an example of how students can earn a Globalist badge.

Table 4: Descriptions of Badges for Liberal Arts Citizenship

Liberal Arts Perspective	Description	Earnable Badges
Globalism	The virtues of citizenship are being redefined in an increasingly global society. Developing global perspective is a lifelong endeavor that begins with understanding your place in the larger world and the complexity and connectedness of our global community.	• The Traveler • The Culturalist • The Globalist
Engagement	The heart of a productive community or workforce of academic institution is an attentive and participatory citizenry. You demonstrate engagement getting involved, speaking up, and building connections with your peers and mentors.	• The Community Volunteer • The Self-Advocate • The Storyteller • The Networker
Initiative	Strong communities are built on a foundation of motivated citizens. You exercise intention by making deliberate decisions, advocating for yourself, leveraging available resources, and asking for help when you need it.	• The Self-Directed Learner • The Academic Planner • The Careerist
Leadership	Our society needs responsible citizen leadership. As a student leader in the liberal arts, you balance power and ability with empathy and nuance. You take on challenges to improve yourself and the circumstances of others; you inspire others through your actions and hold yourself to the highest standard.	• Liberal Arts Champion • The Self-Aware Leader • The Leadership-Fellow

Table 5: Example Activity to Earn Globalist Badge

Liberal arts perspective	Global perspective: Ways to earn each badge in this perspective include taking part in a study abroad program (The Globalist), attending an international student event (The Culturist), or traveling for service or study (The Traveler).
Badge name and description	The Globalist: Living abroad, whether for study or work, enables you to understand and appreciate other cultures and to see your own in a new way.
Activity or requirement	Earn the Globalist badge by completing a six-week or longer study or intern abroad program. Evidence: Successful completion of a study or intern abroad program and submit a reflection post or photo essay to the Liberal Arts Voices blog. The post should summarize the study abroad experience, demonstrate thoughtful reflection that address global perspective and/or liberal arts values, and be ready to publish, free of grammatical and structural errors. Blog posts should be at least 400 words and include at least one image. (Penn State, 2014)

Taken collectively, the Liberal Arts Citizen Badges provide a way for learners to connect identities through the lenses of engaged participation: volunteering and community (dialogic), service as academic study abroad (institutional), or taking a leadership role in a university club (affinity). These perspectives were agreed upon by the academic units as representing liberal arts values, thus collectively resonating with the values of the academic community. By providing learning paths in terms of values and practices of what it means to be a liberal arts student, learners could more easily define their identity as such a person. Similarly, through earning badges and adding them to portfolios, learners provided visibility to their accomplishments, had their identity affirmed by the institution, and made their artifacts public, often via blog post, video, or photo. These forms of sense making through media were also forms of narrative making. The ability for learners to choose the kind of badge and the specific activity that was meaningful to them was a form of agency and personalization.

Discussion

The case study demonstrates the variety of activities, contexts, and tools learners engage with through play, participation, and professional learning landscapes. Although identity processes cannot be quantified, this case begins to investigate ways to recognize, visualize, and evaluate these complex processes. Identity work, as both metacognition and critical thinking, can be used as a bridge to recognize and assess other very important skills that are central to lifelong learning but may be outside the scope of any single curriculum. Here, badges act as the identification *with* and identification *to* belong to a community through the kind of participation described by Nasir and Hand (2008): "Participation in learning settings extends beyond learning ... to the very definition of who one is and who one is in the process of becoming through participation" (p. 176).

If we return to Gee's identity discourses, we can add more nuance to our design decisions. We must understand not only Gee's natural, dialogic, institutional, and affinity discourses, but also the context of the discourses in which learners are predominantly situated, the formality or informality, and what expectations are part of each learning scenario. The format for articulating what a learner knows, the tools, presentation, language, and authoritative sources will change with each identity discourse

(institutional vs. affinity). By colliding, stretching, and remixing activities and learning constructs, designers, technologists, and instructors can give learners a richer understanding of their learning landscape.

Learning designers occupy a pivotal role that allows us to advocate for and actively embed identity-centered design elements and principles into learning contexts. Designers are able to utilize this framework to analyze how their work supports opportunities for learners to choose and reflect upon their identity in prior, current, and past learning experiences. Here, we provide three examples of how designers could use this framework in their practice.

First, the community and competencies elements have important implications for CSCL. We advocate for designers to move past conventional fixed-group models and use identity work to inform small group collaboration models such as *interactions groups,* which allow for greater cross-group knowledge sharing throughout the learning process. Models for *opportunistic collaboration*, where groups form, dissipate, and recombine as part of an emerging process (Zhang et al., 2009), may be used as well. Designers could explore different configurations of collaborative groups by using identity work to structure groups and evaluate the knowledge building they produce.

Next, visibility is important for defining and enforcing identities, and designers can influence decisions to enhance the visibility of underrepresented populations to match demographics or to push boundaries. In our professional work with graphics and multimedia, the designer plays a crucial role in choosing and organizing the visual cues of learning materials. Designers should pay attention to who is being represented; for example, are there people of diverse racial backgrounds, ages, and abilities in graphics? Circumventing race or gender conversations by simply resorting to icons or unrealistic colors (e.g., "Let's just make this person blue.") instead of making a design choice stifles opportunities to discuss representation and often exacerbates implicit biases.

Finally, although the learner is the main focus of our designs, instructors, faculty, and teachers also are important users, implementers of our designs, and often learners, too. We view instructor agency—the ability to choose how to represent and communicate identity work—just as vital. Collaborating closely with a learning designer can push instructors to define their values and beliefs about their students and their own teaching. Instructors are the key interpreters and implementers of learning activities and landscapes. Therefore, designers and collaborating instructors could adopt this framework to align or mediate the types of identity work that are desired or lacking.

Another perspective to consider is the role of the educational technologist and how they can utilize this framework to contextualize learner identity from the scope of user-experience. Identity is aligned with Salvo's (2001) conception of dialogic ethics within user-centered design: "Self is constituted through interactions with the other. Identity is created in the interplay between self and other, and the making of one's self through communication" (p. 276). A related consideration to this perspective is is how educational technologists can utilize this framework to contextualize learner identity from the scope of user experience. At the intersection of learning designers and educational technologists, this framework could be employed when collaborating and designing educational experiences for mobile devices. Smartphones and mobile computing have become more ubiquitous; researchers and designers therefore have a greater ability to make use of boundary-crossing contexts to serve learning, pedagogy, and institutional research. This ability increases the potential for learners to make connections and share different facets of their lived experiences, whether at the grocery store, workplace, or the dinner table. Likewise, learning designers could benefit from adapting educational

technologists' user-experience methods in order to understand the cluster of behaviors, competencies, and attributes of both the learning and technological media. This understanding could allow for the design and development of more holistic learning systems for learners and instructors alike. This framework can be used to bridge the dialogue and leverage the expertise of the learning designer and educational technologist for identity-centered design.

Designers work within constraints and may not be able to control the micro-aggressions that may be a part of identity policing that can happen in a discussion forum or course survey. Yet, designers are well placed to have conversations with faculty and administrators in order to collectively create control strategies that mitigate the consequences of schismatic identity processes. We advocate for focusing on the affirming and creative uses of identity work for learners and to adopt a critical approach to learning design practice. The framework presented here expanded upon processes to reflect the fluid and metacognitive identity work we hope to inspire. Thus, we conceptualize the following: defining is the processes of inscribing and representing identities. From there, we expand coding to editing and hacking the markers of signification, while affirming and communicating identity performance within and outside communities. Finally, enforcing encompasses ways of knowing and belonging while incorporating new and emergent social constructions. We know that both learners and faculty lead interesting, messy, and diverse lives. The technology exists to capture and connect their experiences—we are only lacking the designs to do it.

Conclusion

Broadly within our professional practice, we want to know both *what* and *who* our learners are. How could we leverage technology-mediated practices to support lifelong learning? How could we as learning designers and educational technologists add to the conversation and practice around diversity and equity? These professional questions compelled us to investigate how identity could be used as both a design principle and a heuristic. Learners engage with our designs or with each other through many identification categories. By adopting methods such as multi-layered learner analysis and creating avenues for learners to share, reflect, and create their identities, we as designers can better advocate on behalf of them and faculty. Technology is not value- or culture-free (Amiel & Reeves, 2008). Therefore, learning designers along with educational technologists have a responsibility in their roles as change agents to take into account ethical implications and design considerations of learner identities. We found that appropriating a design language to create our framework (characterized by elements, principles, and critical inquiry) was a useful heuristic. It is meant to help learning designers, educational technologists, and our collaborating faculty to consider the deeper impacts of their designs. An identity-centered design framework also aids learning designers in being advocates and leaders for more equitable and ethical approaches to online learning. Using learner identity as a design focus can facilitate more inclusive, engaging, and transformative educational experiences and spaces that, in turn, empower learners, faculty, and ourselves.

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