Reconsidering Dale's Cone: Towards the Development of a 21st Century "Cone of Experience" to Address Social Justice Issues

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With the overarching goal of understanding the full scope of recent technology trends, this position paper developed an initial framework of possible instructional technologies and their potential impact on social justice issues. To construct this framework, an analysis of technology trends during the last 11 years was conducted. Our emerging framework includes 11 primary technology trends categories. In addition to describing this framework, specific social justice instructional activities in utilizing Molenda and Subramony's (2021) communication configurations, as well as elements of the Cone of Experience described by Dale (1969), are proposed.

Introduction

In this position paper, we examine technology trends over the past ten years and consider how these trends may impact educational experiences about specific social justice issues. We attempt to address two broad questions that incorporate the intent of this special issue, namely, how can the Learning Design (LD) discipline promote social, political, and economic change? and what prescriptive advice can we provide to designers to create effective instruction for this type of issues? Our aim is to create a toolbox that includes recent technology trends that an LD professional could leverage to develop and deliver effective social justice education.

Application of Hoban, Dale, and the Cone of Experience on Social Justice Issues

Fortunately, our Audiovisual Education predecessors have proposed guidelines on the role of instructional media and its impact on instructional outcomes. Almost eighty-five years ago, Hoban et al. (1937) laid the initial framework acknowledging the relationship between types of media (such as visual aids) and student experience for optimal educational outcomes.

In other words, as students advance, the preferred educational approach should be adapted from more concrete visual aids or media experiences as opposed to abstract visual aid or media experiences. This concrete approach espoused first by Audiovisual Education discipline is a critical component of an LD's toolbox.

Nine years later, Edgar Dale (1946) constructed a model known as the "Cone of Experience." Dale's Cone directly succeeded from Hoban et al.'s (1937) concrete-abstract continuum and Bruner's (1966) three major modes of learning (i.e., enactive, iconic, and symbolic). It illustrated the role of educational media in providing different types of educational experiences, from more direct, concrete experiences to more elaborative, rich experiences. In his book and subsequent editions, *Audiovisual methods in teaching*, Dale (1969) stressed the importance of developing rich experiences (p. 85) in order to provide learners' "rewarding, relevant experiences" (p. 52). Dale's Cone has provided a useful framework for educators to match their instructional media approach to their desired educational experiences. For example, the process of developing creative, rich learning activities such as a simulated cross-section model of an airplane and historical reenactments are the application of Dale's Cone (Acland, 2017). Hoban's original emphasis on matching instructional media to student experiences and Dale's well-known Cone of Experience are touchstones in connecting the universe of instructional media to the development of the most effective learning experiences.

A more recent clarion call for LD professionals and researchers is to advocate the consideration of a heightening awareness of social justice issues. Bradshaw (2018) aptly noted LD professionals now need to pay attention to how to address and prescribe instructional and non-instructional interventions from their respective toolbox. LD professionals now have the added responsibility of understanding and immersing oneself

into the culture of a particular target audience, learners, stakeholders, etc. It is not only incumbent upon an LD professional to complete a modified version of the ADDIE process but then also going through a quasi-ethnographical process of understanding the culture of a specific group of learners (Asino, 2017). According to Hackman and Rausher (2004), the inherent characteristics of social justice issues are "social responsibility, student empowerment and the equitable distribution of resource" (p. 114). While these issues were not necessarily considered when Hoban et al. and Dale developed their respective frameworks, they are certainly worth considering in our present political and social context. Hoban et al.'s (1937) relatively simplistic concrete to abstract framework and Dale's modified framework or Cone of Experience focus on creating potentially effective social justice instruction by emphasizing the importance of making this type of instruction concrete and providing what Dale (1946) termed "direct purposeful experiences" (p. 111) in order for "permanent learning" (p. 51) to occur. Thus, both frameworks have the potential to improve the way that LD as a discipline can capitalize on current technologies to offer socially responsible designs that empower students and support the equitable distribution of instructional resources.

Purpose

With the goals of considering Hoban and Dale's respective efforts with a 21st century social justice lens (Bradshaw, 2018), we developed an initial framework of possible instructional technologies and their potential use for designing educational experiences that can impact key social justice issues. To construct this framework, we conducted an analysis of LD trends during the last eleven years (2009-2020) and then categorized these trends using Molenda and Subramony's (2021) *Communication Configurations and Methods*. These trends have been organized into an initial structure and we provide examples of how these trends may be used for education on social justice issues (e.g., climate change) in order to contribute to the aforementioned ID toolbox.

Methods

An emergent theme analysis approach was used to analyze recent technology trends and develop a structural framework for these trends. Our end-result, a framework, is an emerging, novel, and provisional construct for which the primary purpose is to depict the overall picture of recent technology trends that have been developed over the past eleven years.

Overall Data Analysis Process

Data on recent instructional media and technology trends were drawn from several key sources, including book chapters, online reports, and podcasts. Each source was produced by reputable authorities in the LD discipline and was selected based on its scope and thoroughness. Because of the focus of this position paper is on recent trends during the past eleven years, only publications between the years of 2009 and 2020 were analyzed. We evaluated three primary technology trends sources for our data analysis: *Educational Media and Technology Yearbook*, *EDUCAUSE Horizon Report*, and the *Trends & Issues in Instructional Design, Educational Technology, and Learning Sciences* podcast. Data were then categorized into media types using the constant-comparative technique (Creswell, 2009).

After assessing category validity, recent technology trend categories were developed to define a descriptive framework for considering the affordances of these media formats. Each of these trends were the unit of analysis. Specific themes emerged from this analysis by using a constant-comparative technique (Creswell, 2009). Two researchers independently coded each of the identified technology trends. The researchers analyzed the data in multiple sets to help ensure accuracy in coding. After meeting multiple times, the researchers came to consensus on a final listing of themes. In addition, an implementation of Popadiuk and Marshall's (2011) reliability check, *comprehensiveness of categories* was conducted. In particular, prior to commencing the coding process, approximately 10% of the technology trends (n=81) were randomly selected and withheld. Once the themes were established, all of the withheld technology trends were successfully categorized using one the emerging themes/categories.

The last credibility check involved a review by an editor of an international journal in the LD discipline. This reviewer has more than ten years of experience as an LD faculty member and has been a co-editor of an LD journal for over five years. This faculty member reviewed the listing of themes and responded to three questions: a) are these categories useful in identifying recent technology trends? (b) are there any surprises with these categories? and (c) are there any omissions in these categories with regard to recent technology trends? This reviewer observed the following with regards to our proposed technology trend categories. He thought that our main categories: Devices, Ideas, and Methods were relatively on par or "decent" in representing the last eleven years of technology trends. He did suggest emphasizing the term, Functions; that is the function of a particular technology trend or "what things can do (or their functions)". He did not find any "surprises" but did emphasize the growing trend of "customization of instruction" while at the same time accentuating the non-digital learner and technology trends that could possibly support non-digital learning. One of his conclusions is that our LD discipline "needs

more of a synthesis of empirically proven ideas" and is directly the emphasis of this position paper.

Data Coding

An initial manual coding was performed to distinguish trends from issues in the field. Trends were identified based on Reiser's (2017) definition of a technology trend: an "idea, device, or method" (p. 139). Issues were identified as broader concerns or developments in the field (e.g., policies, security issues, etc.) that do not provide a direct application to instruction. Two researchers independently coded whether entries should be classified as issues or trends. After meeting twice to discuss disagreements, full consensus was reached. Items identified as issues subsequently were removed from the dataset.

After the dataset was constrained to focus solely on trends (n = 1062), specific trend categories were identified using a constant-comparative technique (Creswell, 2009). Two researchers independently coded each trend in two main phases. In the first phase, each researcher independently generated media categories for each trend. Between the two researchers, there was 62.5% agreement during the initial coding process. The researchers met once to refine the list of categories by reviewing and discussing discrepancies. After consensus was reached, a final set of categories was documented in a codebook. In the second phase, the researchers independently re-assessed all disagreements to determine whether they could be appropriately categorized according to the codebook. After three rounds of coding, the researchers concluded with 99.3% agreement.

To further support the trustworthiness of the approach, the following credibility checks were implemented. First, as noted in the previous paragraph, researchers independently analyzed and coded the dataset in each round. After several stages, this process reached *coding exhaustiveness* (Butterfield et al., 2005). Second, Popadiuk and Marshall's (2011) *comprehensiveness of categories* reliability check was utilized. After the dataset was prepared and all items categorized as *issues* were removed, 10% of the remaining *trends* items were randomly selected and withheld from coding. After the codebook was established and all other items were coded, these 10% (n = 81) were coded according to the existing categories, ensuring completeness of the defined categories. Additionally, instructional technology trends identified in a resource not utilized in the dataset, such as Reiser and Dempsey's (2018) *Trends & Issues in Instructional Design & Technology* textbook and other relevant sources (e.g., Reiser, 2017), were informally assessed according to the codebook to evaluate category comprehensiveness; all of the identified technology trends were reflected in our framework.

Results

Our provisional framework is organized into Reiser's (2017) three characteristics of a technology trend, namely: "a new idea, device, or method" (p. 139). There are six devices, one idea, and four resources. In addition to these recent technology trends, we identified established technology trends. These trends have seemingly become commonplace in our society, such as computers or instructor-led classroom training. Because our focus in this article is on unique devices, ideas, and resources that are relatively novel within the past ten years, we only note these established technologies and methods where there were innovative aspects of the established technology or methods, such as an increasing amount of K-12 schools using laptops for classroom instruction (Brown & Green, 2012). Below we describe the devices, idea, and methods that constitute our framework (see Table 1).

Devices

There are six devices in our emerging framework, including learning management systems (LMS), mobile devices, physical resources, digital resources, mixed reality, and collaborative learning tools. In addition, we identified two established technologies, including both hardware (e.g., videos) and software (e.g., websites). Technology trends involving LMSs included increased use of standard LMS features (such as posting materials and grades) across learning settings, including live classrooms as well as blended and online learning experiences (Brown & Green, 2018a). Further, there was discussion of new LMS tools (e.g., Brown & Green, 2018b) and students' desire for more robust LMS use in their classes (Brown & Green, 2015). Technology trends involving mobile devices are comprised of smartphones, such as new iPhone and Android devices and OS updates (Brown & Green, 2018c), and tablets, such as Apple and Samsung devices (Brown & Green, 2019e), and their use to support learning in the classroom and beyond (Brown & Green, 2014). We distinguished between technology trends that included physical resources and digital resources. Physical resources included Robotics (e.g., Lego robot sets, Brown & Green, 2019b), 3D Printing (e.g., The Smithsonian Institution's initiative to enable cultural and historical learning via 3D printing of artifacts as reported in Johnson et al., 2014) and Makerspaces (e.g., STEM uses highlighted by then President Obama in the Maker Faire event as described in Johnson et al., 2015). Digital resources included digital textbooks (e.g., Pearson moving toward digital offerings, Brown & Green, 2019d), open educational resources (e.g., free education products created by Google and Amazon, Brown & Green, 2016), podcasts (Brown & Green, 2009), and holograms (e.g., PORTL's life-sized holograms, Brown & Green, 2020c).

Table 1

Recent Technology Trends (2009 – 2020)

Type	Category	Technology trend
Devices	**Learning Management Systems**	**Learning Management Systems**
	Mobile Devices	Smartphones
		Tablets
	Physical Resources	Robotics
		3D Printing
		Makerspaces
	Digital Resources	Digital Textbooks
		Open-ended Resources
		Podcasts
		Holograms
	Mixed Reality	Gesture-Based Computing
		Virtual Reality
		Augmented Reality
		Wearable Devices
		Geolocation
		Voice-activated Devices
		Internet of Things
	Collaborative Learning Tools	Online Collaboration Tools
		Cloud Collaboration
		Social Media
	Collaborative Learning Tools	Videoconferencing
		Wikis
		Blogs
	Established technology – Hardware	Computers (Desktops and Laptops)
		Video
		MP3 Players
		Adaptive Learning Tools
	Established technology – Software	Printed Content
		Graphics/Images
		Websites
Idea	Artificial Intelligence (AI)	Deep Learning
		Blockchain
		Learning Analytics
Methods	Innovative Strategies	Personalized Learning
		Authentic Learning
		Collaborative Learning
	Online Learning	Online Courses
		eLearning modules
		MOOCS
		Digital Credentialing and Badges
	Mixed Learning Delivery	Flipped Courses
		HyFlex Courses
		Blended Courses
	Gamification	Gamification
	Established Instructional Methods	Formal and Informal Learning General Strategies
		Instructor-led classroom training

Mixed reality included various technology trends that offer learners the ability to interact with content in what Dale (1969) labeled as direct, purposeful experiences, such as, gesture-based computing (e.g., Microsoft Kinect for educational interactions with wildlife, Johnson et al., 2012), virtual reality (e.g., virtual field trips, Brown & Green, 2019c), augmented reality (e.g., experiencing literary characters as described in Brown & Green, 2019c), wearable devices (e.g., collecting data for fitness education, Johnson et al., 2016), geolocation (e.g., Next Exit History's project using geotagged media, Johnson et al., 2009), voice-activated devices (e.g., Brown & Green, 2019c), and Internet of Things (Alexander et al., 2019). Collaborative learning tools also refers to technology trends that potentially enable learners to effectively work together at a distance, such as online collaboration tools (e.g., VoiceThread as described in Brown & Green, 2013), cloud collaboration (e.g., G Suite for Education as described in Brown & Green, 2019a), social media (e.g., Facebook collaborative team projects as described in Brown & Green, 2014), videoconferencing (Brown & Green, 2020), wikis (e.g., Wikiwijs for teachers to exchange content as described in Johnson et al., 2015), and blogs (Brown & Green, 2013).

Idea

Our analysis uncovered one overall idea under the umbrella term, artificial intelligence (AI). AI technology trends include deep learning (e.g., the use of neural networking algorithms to help botanists identify plants logged by smartphone photos taken by community members in the Smart Flower Recognition System, Adams Becker, et al., 2017), blockchain (Brown & Green, 2019a), and learning analytics (e.g., RiPPLE, a platform leveraging student data to provide personalized resource recommendations, Alexander et al., 2019).

Methods

Our developing framework is comprised of four novel instructional methods conceived within the past ten years and a set of established instructional methods (e.g., simulations). Innovative strategies include personalized learning (e.g., Fontan Relational Education model, Johnson et al., 2015), authentic learning (e.g., apprenticeship model in the United Kingdom, Adams Becker et al., 2018) and collaborative learning (e.g., The Global Book eBook series, Johnson et al., 2015). The main technology category, Online learning, includes online courses (e.g., virtual state K-12 schools, Brown & Green, 2017), eLearning modules (e.g., reusable corporate eLearning courses, Brown & Green, 2013), MOOCS (e.g., courses provided by Stanford, Brown & Green, 2014) and digital credentialing and badges (e.g., Mozilla Open Badges, Johnson et al., 2015). Mixed Learning Delivery contains technology trends that combine both face-to-face

instructional methods with online instructional methods, such as blended courses (e.g., K-12 schools offering more digital resources in conjunction with classroom learning, Brown & Green, 2018a), flipped courses (Brown & Green, 2017), and HyFlex courses (Brown & Green, 2020b). Finally, Gamification is an innovative method by itself. It can be argued that instructional games are similar to its instructional simulations counterpart and that instructional games can be considered a conventional technology. However, many innovative practices involving a new *Gamification* term have been established in the last ten years involving innovative technology trends, such as use of gaming consoles for therapeutic and educational applications, leveraging digital leaderboards and reward systems for student engagement, targeting specific skills (such as social skills or STEM) via fully gamified online experiences (Johnson et al., 2014), and other similar Gamification technology trends.

Technology Trends' Pedagogical Affordances

Since one of the goals of this position paper is to provide a guide on how to identify and utilize current and emerging LD to effectively address social justice issues with a specific group of learners, we deemed it essential to uncover the affordances of each of the technology trends. Gibson (1966) originally coined the term *affordances* to refer to properties of an entity which demonstrate to the user how to interact with that entity. In instructional design, affordances can be conceptualized as the opportunities that educational media or activities present for interaction or usage (Norman, 2013). We then provided specific examples of how that affordance of the technology trend may be leveraged to address a social justice issue.

First, we consulted two main sources to establish a useful taxonomy of the different types of learning experiences offered by different technologies: namely, Dale's (1969) Cone of Experience and Molenda and Subramony's (2021) *Elements of Instruction*.

As stated previously, Dale's (1969) Cone of Experience is a seminal framework for understanding what different technological approaches may offer for creating different types of educational experiences, from the enactive to the abstract. We began the development of our new framework by identifying the elements of Dale's Cone that are likely to support Transformative Social and Emotional Learning (SEL) for social justice issues; specifically, we focused on opportunities for enactive activities leading to permanent and rich learning experiences. Dale's Cone notes several types of technologies or trends that might be used (e.g., motion pictures, field trips); however, our focus was on aligning the *new* technology trends we uncovered with the *types* of experiences emphasized in Dale's Cone. Thus, we selected Contrived/Dramatized Experiences (which we combined for simplicity) and Direct, Purposeful Experiences as the broad categories from the Cone.

To supplement our taxonomy of affordances, we then turned to Molenda and Subramony's (2021) book. With their "broad, eclectic view" of learning, Molenda and Subramony define "instructed learning as human learning that is mediated symbolically in planned interactions between facilitators and learners" (p. 95). Molenda and Subramony (2021) offer seven distinct categories of formal instructional events, based on the type of educational opportunity or affordances: Presentation, Demonstration, Discussion, Tutorial, Repetition, and Study (p. 305). During Presentation activities, learners process "new verbal or visual information," during Discussion types of activities, learners perform in "mental processing of new information," and during Study activities learners "contemplate" verbal or visual information at one's own pace (Molenda & Subramony, 2021, p. 305). Molenda and Subramony (2021) noted that Demonstration activities exclusively are dependent on an "instructor's selection of content, gathering of sources and materials, and choice of time and place of delivery" (p. 173). In contrast, Expression activities are exclusively focused on the "learner, who typically exercises nearly complete control over the time, place, and sequence of the activity" (p. 281). Tutorial activities enable learners to gain "deep learning of declarative knowledge" (p. 305) whereas these students can practice their newly acquired skills in Repetition activities. We utilize all of these categories to demonstrate the types of educational events that may be supported by recent technology trends. Thus, the combination of Dale's original categorization of educational experiences and Molenda and Subramony's (2021) categories of instructional events creates a broad set of educational affordances to consider as we think about how instructional activities may be used to create Transformative SEL opportunities.

Finally, since both resources exclusively focused on formal instruction, we added informal learning to our overall list for a more comprehensive focus. It is noted that we did not include Dale's (1969) abstract components (i.e., verbal symbols and visual symbols) of the Cone of Experience nor Molenda and Subramony's (2021) performance/non-instructional interventions when considering the affordances of the technology trends for social justice education. Because Transformational SEL involves deliberate, enactive, and elaborative experiences, we assert that symbolic and performance/non-instructional interventions are unlikely to be effective for this purpose. For example, when teaching about the Black Lives Matter movement, memorizing what B, L, and M stand for is not a transformative learning experience. Similarly, we cannot envision any credible performance/non-instructional

interventions for transformative learning about a social justice issue.

Tables 2 and 3 illustrate possible instructional scenarios involving our technology trends, these instructional approaches, and specific social justice issues. Though there are a multitude of social justice issues, we focused on a list of current social justice issues curated from the United Nations (2021) press coverage webpage (https://www.un.org/press/en).

Pedagogical Affordances: Device Trends

Table 2 displays several exemplars on how to utilize our emerging set of technology trends devices with specific instructional affordances with regards to designated social justice issues. For possible presentations to students, a facilitator could create an LMS which houses a data repository on last year's climate change data or could demonstrate the reality of an unfair justice system by creating an experience of interacting with a virtual reality avatar who endured an unfair justice system. An LD can initiate a social media discussion regarding the importance of voting rights, as well as create a VR walkthrough of an established justice system. An LMS can include repetitive quizzes about climate change or an open-ended repository can consist of resources that enables learners to study data on status-based violence issues. A blog can serve as tool for students to express themselves on a variety of social justice issues, as well as a virtual reality instruction can enable one to have a dramatized experience and "walk a mile" in someone's shoes regarding a variety of issues. Finally, podcasts are often used to informally educate about a variety of social justice issues.

Pedagogical Affordances: Ideas and Methods Trends

Table 3 displays several instances on how to utilize our emerging set of technology trends, ideas, and methods with regards to designated social justice issues. For example, an AI-aided presentation on certain diseases can be created to help eradicate these particular diseases or a game can be developed to demonstrate key concerns about economic assistance needs. In addition, a debate game can elicit further discussion about economic disparities. An e-Learning module tutorial can be developed to teach individuals about a particular refugee crisis, and another e-Learning module can enable students to memorize (repetition) key aspects of a particular social justice issue. An AI adaptive textbook can encourage learners to study about various related social justice issues and a gamified VR walkthrough could provide a venue where learners can express their opinions about a social justice issue can take place. A contrived experience involving an AI hologram about a specific disease can take place as well as AI generated recommendations on how to informally learn more about a disease are possibilities in the near future.

Table 2

Recent Technology Trends Devices and Social Justice Issue Instructional Events

Technology Trend/Social Justice Issue	**Communication configuration method**								
	Presentation	**Demonstration**	**Discussion**	**Tutorial**	**Repetition**	**Study**	**Expression**	**Contrived/ Dramatized**	**Informal**
LMS -Climate change	Last year's climate change data	Videos on climate change	Discussion board discussions on climate change issues	Captivate modules on climate change	Drill and practice quizzes on climate change	Access to various databases on climate change	Access to blogs and/or wikis on climate change	Simulations and models related to climate change	
Mobile Devices - Equal Voting Rights	Accessing websites to read facts on voting rights	Video about the importance of movements to gain voting rights	Social media discussions about voting rights	App focused on voting rights history	Online quizzes	Review of online content in course or curated library	Reflecting on key takeaways on social media	Mobile polling simulation that illustrates when everyone's vote is counted	Web materials to learn more about voting rights issues
Physical Resources - Access to Food, Water, & Sanitation	Presentation of water purification system			Walk-through of 3D printed model showing how to do better city planning	Practice coding robotics to aid with food, water, or sanitation issue		Creating model that demonstrates better resource access		

Digital resource - Protection against Status-based Violence	**Online news coverage of status-based violence issues**	**Podcast interviewing people impacted by Status-based violence**	**Digital textbook elaborating on status-based violence issues**	**Open educational resources focused on helping students investigate status-based violence issues**				**Documentary with dramatized interviews addressing violence issues**	**Podcast on related violence issues**
Mixed reality- Fair Justice System	**AR museum that includes see/hear content-specific multimedia displays**	**VR experience speaking to someone with unfair experience with justice system**	**VR discussion groups enabling moderated conversation on related unfair justice experiences**	**VR walkthrough of justice system experience**	**AR and VR game to practice key information on justice system fairness**	**Database of AR and VR experiences with regards to fair justice issues**	**Working with team in VR world to establish fair justice practices**	**VR video experience to "walk a mile" in someone else's shoes**	**Geolocation to share facts about important justice system events near where students are physically**
Collaborative learning - Access to Hiring and Opportunities	Collaboration with goal of gathering materials with regards to hiring and opportunities	Polling to demonstrate how many people have had or witnessed unfair job opportunity experiences	Group discussion on issues related to equal access and hiring	Small-group videoconference with instructor to talk through key aspects of related issue	Group quizzes using cloud collaboration to practice key questions	Video conference study sessions to review content	Contribute to blog about equal access to hiring issues	Groups create skits to show do's and don'ts of fair hiring and promotion practices	Backchannel communication and sharing of personal experiences with job access opportunities

Table 3

Recent Technology Trends Idea/Methods and Social Justice Issue Instructional Events

Technology Trend/Social Justice Issue	**Communication configuration method**								
	Presentation	**Demonstration**	**Discussion**	**Tutorial**	**Repetition**	**Study**	**Expression**	**Contrived/ Dramatized**	**Informal**
AI/Efforts to Combat Diseases Worldwide	AI-aided presentations on specific disease	AI model that illustrates potential spread of disease	Use of AI chatbot to simulate "conversations" with "people" who have different diseases	Personalizes learning route based on learner profile generated via AI	AI drill/practice activities on disease facts	AI-adapted textbook customized to learner needs		Conversation with AI-powered hologram to understand key issues about disease	
Innovative strategies - Equal Access to Educational Opportunities	As a personalized learning approach, students begin the course by selecting a case study to view based on their interests	Academic professionals share their own goals and practices for ensuring equal education access	Collaborative learning that generate ideas about how bias may impact educational access	For deep learning, students study one of the core issues in academic access		Personalized learning via adaptive flashcards to review key concepts in educational access	Problem-based learning in which learners define unbiased admissions procedures for a university, using an example dataset		Authentic experience providing educational assistance in an after-school program
Online learning - Asylum for Refugees	Online resource with main facts about current refugee crises	Online resource (e.g., video) describing a refugee's point of view	Discussion board about rights of refugees	Self-paced eLearning module reinforcing key content	Practice questions included in eLearning module to help students practice remembering core facts of refugee crises	Online access to self-report accounts from refugees		Online assignment such as video submission expressing learner's takeaways and important actions	Online media that presents a personal account of what it would mean to the learner to go through common refugee experiences	Watching videos dramatizing refugee experience
Gamification - People facing Economic Disadvantage	Choose-your-own adventure style game that introduces key concepts related to economic disadvantage issues	Game with characters that voice concerns related to economic assistance needs	Gamified debate between groups about economic disadvantage issues	Competition to "dig deep" on topics related to economic disadvantage	Quiz game to practice core economic disadvantage concepts	Computer game that allows users to select their topics, etc. with regards to economic disadvantage issues		Gamified self-paced walkthrough of a virtual world with questions to apply knowledge of economic issues	Game simulating economic principles	
Mixed learning delivery - Healthcare Rights and Dignity	In-class introduction to issues of healthcare inequality issues	Video discussing the steps needed for ensuring appropriate healthcare	Panel discussion with healthcare experts	Digital resources to better understand healthcare issues	Online quiz to test memory on related healthcare issues	Online materials regarding healthcare inequality issues		Presentation on healthcare inequality and potential solutions	Group assignment focusing on a core issue in healthcare equality	Podcast on healthcare system and issues

Discussion and Next Steps

This is a first attempt in organizing technology trends

over the past eleven years with the goal of determining effective instructional solutions for social justice issues. A next common-sense approach to further evaluate this framework could be to solely concentrate on a particular social justice issue (e.g., climate change) and speculate how each of the technology trends can be effectively implemented for a variety of related learning goals, contextual settings and diverse groups of learners. This proposed approach would illuminate the efficacy and effectiveness of our framework with regards to designing instruction for the designated social justice issue.

Another consideration is that the original Cone of Experience initially constructed by Hoban and colleagues and then, Dale was based on their respective audiovisual education expertise. Similar to how Bloom's taxonomy was developed, Hoban, Dale, and their respective colleagues speculated on impact of a particular media format (e.g., educational television) on a particular setting (ninth-grade US government class) among themselves. There was no attempt to conduct any research methodologies of any kind (M. Molenda, personal communication December 19, 2020). We speculate that this was because Hoban and Dale constructed their respective frameworks *before* the advent of a qualitative research methodology. Besides our own constant-comparative process, we anticipate other research methods such as West and colleagues' pseudo-bibliometrics studies (West et al., 2018), can be applied to construct a common framework of technology trends with the intent of educating students about social justice issues. This possible study only would strengthen and complimented our own efforts described in this article.

In addition to concentrating on a specific social justice issue and considering additional research methodologies in solidifying this proposed framework, some additional thought needs to take place in what shape or figure our framework should be. Our initial starting point was a cone or the Cone of experience. Based on Hoban and colleagues work, Dale conceived of, speculated and then formalized the cone based on Bruner (1966) concrete-abstract continuum. What shape would be best suited to illustrate our emergent framework particularly with regards to social justice issues? To properly consider this revision, one needs to contemplate the interrelationship between technology trends and social justice issues. Again, as was stated previously, it is no doubt that an abstract instructional event about a social justice issue is overtly ineffective. There must be a direct connection with learners' affective domain and the specific social justice issue. In addition to adopting culturally sensitive techniques, such as Peters and Giacumo's (2020) ethical and responsible cross-cultural interviewing methods, a comprehensive investigation on the new area of Social Emotional Learning and its relationship on our technology trends framework should take place in order to provide more guidance on how to effectively educate learners about social justice issues.

Conclusion

This position paper is an attempt to provide a provisional structure with regards to current and emerging technology trends for the LD professional. Along with Molenda and Subramony (2021)'s communication configurations and selected components of Dale's (1969) Cone of Experience, an LD professional can use our framework to effectively connect these current technological trends to educating learners about an assortment of social justice issues. If this scenario comes to fruition, we will be pleased that our framework and efforts are a positive implementation of our respective LD expertise.

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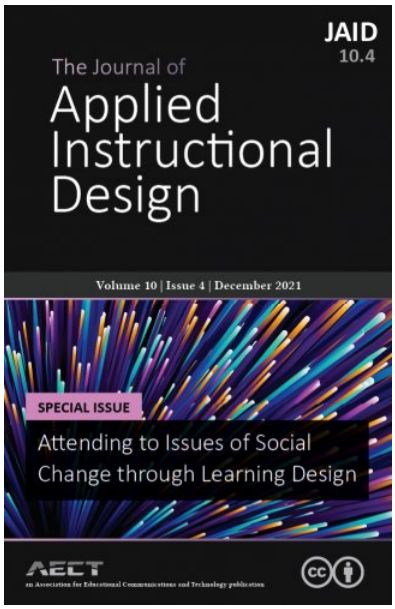

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