



Learning and development roles and competency domains in higher education: a content analysis of job announcements

Florence Martin¹ · Yan Chen² · Beth Oyarzun¹ · Mark Lee³

Accepted: 16 July 2021 / Published online: 21 July 2021

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2021

Abstract

Learning and Development (L&D) roles are important to organizations for improving employee's knowledge and skills. This study examined various roles and competency domains required of learning and development professionals in higher education. Ten different roles of L&D professionals were examined for 20 competency domains through a qualitative coding process. We extracted and analyzed 294 unique postings from the job board, [higheredjobs.com](https://www.higheredjobs.com). Results indicated that designers and directors are the most advertised L&D postings. The top five competency domains required of L&D professionals were collaboration, communication, content development, project management, and assessment and evaluation. Communication and collaboration skills were required for most of the roles. Leadership and people management were ranked highest for executives and directors. In addition, competency domains aggregated by roles are provided. Implications are provided for employees, L&D graduate programs and professionals, and researchers.

Keywords Learning and development · Higher education · Roles · Competencies · Domains

✉ Florence Martin
Florence.Martin@uncc.edu

Yan Chen
yanchen@unm.edu

Beth Oyarzun
Beth.Oyarzun@uncc.edu

Mark Lee
malee@csu.edu.au

¹ Learning, Design and Technology, University of North Carolina Charlotte, 9201 University City Blvd, Charlotte, NC 28223, USA

² University of New Mexico, Zimmerman Library Room 242, Albuquerque, NM 87131, USA

³ School of Education, Charles Sturt University, Wagga Wagga, NSW 2678, Australia

Introduction

Learning and development (L&D), a specialized human resources function, focuses on improving employee's knowledge and skills and thereby increasing an individual's job performance. The term "learning and development" can also be interchangeably referred to as training and development. The L&D roles in higher education are usually affiliated with centers for teaching and learning involved with faculty development and human resource training that supports staff development. We chose to use the term "learning and development" since this is a broader term that encompasses various roles, including instructional designers.

Learning and development focused professional organizations

Several professional organizations focus on L&D. Some of the organizations that primarily focus on L&D competencies in corporate sectors with some resources for higher education include, Association for Talent Development (ATD), Learning and Performance Institute (LPI), International Society for Performance Improvement (ISPI), and Institute for Performance and Learning (I4PL). Each of these organizations has published competencies or skills for learning and development professionals. ATD (2014), formerly known as the American Society for Training and Development, included ten areas of expertise as essential for training and development which include, instructional design, training delivery, learning technologies, evaluating learning impact, managing learning programs, integrated talent management, coaching, knowledge management, change management and performance improvement. They also included six foundational competencies: business skills, global market, industry knowledge, interpersonal skills, personal skills, and technology literacy. The LPI based out of the United Kingdom provides a global view of the skills needed to deliver modern workplace learning and development by focusing on six capabilities: strategy and operations, design and development solutions, facilitating learning, performance and impact, and support learning (LPI, 2012). ISPI has ten standards they have included for performance consultants, and this includes, focus on results or outcomes, take a systemic view, add value, work in partnership with clients and stakeholders, determine need or opportunity, determine the cause, design solutions, including implementation and evaluation, ensure solutions', conformity and feasibility, implement solutions and evaluate results and impact. The Institute for Performance and Learning Professionals (I4PL), formerly known as the Canadian Society for Training and Development (CSTD), has a competency framework for the L&D professional focusing on assessing performance needs, designing curricula, designing learning experiences, facilitating learning, supporting the transfer of learning, and evaluating learning (I4PL, 2020). While each organization has some variations in its standards or competencies, there are commonalities such as designing and evaluating learning solutions.

Some of the other organizations that focus on L&D competencies and standards for various sectors include the International Board of Standards for Training, Performance and Instruction (IBSTPI) and the Association for Educational

Communications and Technology (AECT). IBSTPI (2012) has professional standards for instructional designers, training managers, and evaluators in addition to instructors and online learners. The instructional designer's standards focus on the following domains: professional foundations, planning and analysis, design and development, implementation and evaluation, and management. The training manager's standards focus on professional foundations, performance analysis and planning, design and development, and administration. The evaluator's standards focused on professional foundations, planning and designing an evaluation, implementing the evaluation plan, and managing the evaluation. The Association of Educational Communication Technologies (AECT) (2012) has proposed educational technologists' standards, including content knowledge, content pedagogy, learning environments, professional knowledge and skills, and research.

Additionally, some professional organizations focus specifically on higher education. The Online Learning Consortium (OLC) focuses specifically on the online and blended learning aspects of L&D in higher education. Their five pillars of quality online education focus on learning effectiveness, scale, access, faculty satisfaction, and student satisfaction. Finally, the University Professional and Continuing Education Association (UPCEA) focuses on advancing online learning in postsecondary institutions. They promote seven standards to provide excellence in online learning leadership, and these include internal advocacy, entrepreneurial initiative, faculty support, student support, digital technology, external advocacy, and professionalism (Cavalier et al., n.d.). These organizations point to the need for the satisfaction and support of the major stakeholders in online learning, including faculty and students.

Learning and development roles in higher education

While several research studies have examined the instructional design and educational technology competencies in all sectors (Ritzhaupt & Martin, 2014; Kang & Ritzhaupt, 2015; McDonald & Mayes, 2007; Wakefield et al., 2012; Williams Van Rooij, 2012), only a few research studies are focusing on the instructional design roles and competencies in higher education (Ritzhaupt & Kumar, 2015; Sims & Koszalka, 2008). Ritzhaupt and Kumar (2015) conducted in-depth interviews to study competencies for instructional designers in higher education and found that instructional designers needed a solid foundation in instructional design and learning theory, possess soft skills and technical skills and are willing to learn on the job. Chao et al. (2010) described the role of instructional designers in higher education as supporting faculty or subject matter experts in course design and providing the theoretical background in learning theory and instructional strategy. Similarly, McDonald and Mayes (2007) studied the role of an instructional designer at an Australian university where the designer was involved in interactions with the subject matter expert in the design of course and adoption of the pedagogical framework. The social constructivist principles were highlighted to engage and make it usable for them.

While instructional designers have been the focus of several studies, there have not been studies researching broadly at all levels of learning and development

professionals including executives and directors or those in support positions such as assistants and associates to identify competencies for various L&D roles. Sims and Koszalka (2008) expressed the need for instructional design competencies to be applied for various learners, instructors, and technical support staff rather than only focusing on the instructional designer. Richey and colleagues (2001) identified four roles in instructional design positions, including analyst, evaluator, elearning specialist, and project manager. Recently, learning engineers, learning architects, and learning experience designer positions have emerged which are related to the instructional design positions advertised (Jacobs, 2017; Lieberman, 2018). O'Keefe (2018) discusses the many hats that an instructional designer wears and elaborates that they need to perform several roles in situations where they are a one-member team or a part of a small team. In situations where there is a large team, the different roles can be differentiated, and each professional can focus on a smaller set of competencies.

Learning and development competency domains in higher education

Researchers refer to *competency* as a set of required knowledge, skills, attitudes, and abilities to be successful in a specific job performance setting (El Asame & Wakrim, 2018; Richey et al., 2001; Ritzhaupt & Martin, 2014). Contextualized in the landscape of higher education, the roles and responsibilities of learning and development professionals often reflect the changing academic culture and the evolving needs of the individual, group, and institution involved in this learning community (Blackmore, 2009). The L&D professionals are often affiliated with programs such as the Center for Professional Development, Center for Teaching and Learning, Office of Faculty Affairs & Faculty Development, Office of Faculty Development and Diversity, and Mentoring Institution. These programs provide training to develop both faculty and staff and lead and manage learning and teaching across the institution.

Intentional Future (2016) specified that the responsibilities of the majority of instructional designers in higher education fall into the four categories of *designing* digital materials for course delivery; *managing* the optimization of student learning outcomes through the efforts of administration, faculty, staff, and learning and development professionals such as instructional designers; *training* faculty and staff through effective implementation of technology and pedagogy; and *supporting* faculty and staff with the technical or instructional challenges during this learning and development process. As a result, it requires a set of competencies distinct from those in workplaces such as business and industry, consulting, and healthcare (Klein & Kelly, 2018; Richey et al., 2001; Ritzhaupt & Kumar, 2015). For example, Klein and Kelly (2018) identified five primary instructional design competencies in higher education: effective collaboration, knowledge of learning theory and principles, effective communication through multimodal approaches, and knowledge and experience with elearning-authoring software and learning management systems. Klein and Kelly further indicate that an emerging trend of learning and development professionals in higher education have been involved with the instructional technology category, which echoes the findings

from both previous and recent research (Intentional Future, 2016; Richey et al., 2001; Ritzhaupt & Kumar, 2015; Sugrue et al., 2018).

Additionally, researchers point out that the responsibility of L&D for faculty and staff generally relies on the leadership and management positions in higher education (Marshall et al., 2011; Mukherjee & Singh, 1993). Marshall et al. argued that the key responsibilities of the leaders and managers of learning and teaching were to (1) promote institutional, faculty, and development culture, (2) develop individual faculty and their teaching practice, and (3) develop and maintain collaborative and collegial culture. However, although there has been a recent increase in the hiring of learning and development professionals in varied professional service sectors, only a few studies have focused on studying learning and development professionals, their affiliated leadership and management roles, or their relationship with the development of academic culture development in higher education (Sugrue et al., 2018).

Purpose of this study

While instructional design roles and competencies have been studied widely within all sectors (Klein & Kelly, 2018; Kumar & Ritzhaupt, 2017; Ritzhaupt et al., 2010), there is limited research on broadly studying roles and competencies for all learning and development professionals within higher education. In the present study, we explored all levels of learning and development roles situated in higher education and the competency domains each professional requires. By analyzing the range of postings, we hope to provide implications to programs in many areas, including educational leadership management and human resource development as applied to higher education. It also provides useful guidance for any L&D related program (e.g. instructional design, educational technology) preparing graduates to serve in higher education roles. Through this effort, we aim to portray the many facets of the L&D professionals' roles and competencies in higher education (Marshall et al., 2011). This study contributes to the existing literature by providing a content analysis of job announcements that extracts essential information pertaining to this specific research context in higher education.

Research questions

1. What L&D roles are evident from the job announcements in higher education?
2. What L&D competency domains are evident from the job announcements in higher education?
3. What education level and experience is required for learning and development professionals?

Methods

A systematic review and content analysis of job announcements were conducted to understand the roles of learning and development professionals in higher education. This section details the job announcement analysis methodology used in this study.

Table 1 Job posting categories and selection

Job posting categories	Number of jobs posted	Jobs used in analysis
Distance education	49	32
Faculty development	83	41
Instructional technology and design	320	221
Total	452	294

Table 2 Inclusion and exclusion

Criteria	Inclusion	Exclusion
Focus of the job posting	The job had to be about Learning and Development	Jobs that did not focus on Learning and Development
Publication date	June and July 2019	Prior to June 2019 and after July 2019
Complete posting	Only postings that had sufficient information	Postings that did not have sufficient information

Data collection

Only a single job announcement board in higher education, higheredjobs.com was used in this study. Though there are a few other job boards for higher education, due to the high level of duplication in the job postings, only higheredjobs.com was used. Three categories of job postings that were related to learning and development and posted across two months in June and July 2019 were compiled from higheredjobs.com. Table 1 includes the categories and number of jobs posted and used in this analysis.

While there were 452 postings initially, excluding duplicates and postings that did not fit our inclusion criteria, 294 jobs were identified for analysis. Table 2 includes the inclusion and exclusion criteria used to select the job announcements to be used in this analysis.

Data coding procedures

A total of 452 job postings were initially collected, but only 294 were included for the analysis. Job postings with incomplete information, duplicate postings, or those that did not meet our inclusion criteria were excluded. A systematic process was used for coding the job announcements. A coding form was created in Microsoft Excel and served as a tool to support the coding process for efficiency and accuracy.

The research team discussed the coding form, roles, and competency domains. The lead researcher coded five postings to test the form. The post-doctoral

researcher and a faculty researcher individually coded half of the postings from among the remainder of the postings. The research team met once every three weeks to discuss questions during the coding process. The lead researcher coded 10% of the postings overlapping between both the coders. The interrater agreement was at 83.6%

Based on recommendations for content analysis by Bengtsson (2016), the job postings were carefully examined for roles and competency domains. In addition to roles and competency domains, experience, education, location, and salary were also coded. Since salary information was not provided in most of the job postings, this was not further analyzed. The majority of the jobs were in the United States except for two postings in Canada.

Each job posting was given a unique identification number. Roles were grouped into ten categories, executive, director, manager, specialist, coordinator, designer, developer, technologist, associate/assistant, and other. Table 3 describes the L&D roles in higher education and includes an example title.

Competency Domains were grouped into 20 categories, Strategic Planning, Front-end Analysis, Theories and Frameworks, Instructional Design, Content Development, Facilitate Training, Assessment and Evaluation, Mentoring and Coaching, Tech/Infrastructure Support, Leadership, and People Management, Project Management, Data Analytics, Faculty Development, Recruitment and Marketing, Communication, Collaboration, Student Support, Policy Development, Accreditation, Inclusiveness and Accessibility and other. Table 4 gives the description of each of these domains with examples.

Data analysis

Data was analyzed using Microsoft Excel and SPSS to compute frequencies and percentages for roles and competency domains. Data was sorted by roles and the total number of postings and percentages for each role were computed. Descriptive statistics, including the average number and standard deviation of postings by role, were also calculated. Frequencies and percentages were also computed and reported for competency domains, education requirements, experience, and location. Cross-tab analysis was conducted using SPSS to identify competency domain requirements and education level, and each role. The top five competency domain ranking by role was identified based on frequency.

Results

Learning and development roles

For the ten learning and development roles, frequencies and percentages are provided in Table 5. In addition, the average number and standard deviation of competency domains required for each role are included in Table 5. Based on the frequencies, designers were the most advertised role (26.19%), followed by director

Table 3 Description of roles in learning and development in higher education

Roles	Description	Example title
Executive	Learning personnel with power, oversees various units and provide strategic leadership at a university or college	Dean of Distance Education
Director	Lower level executive and is in charge of a department. Director postings usually includes associate and assistant director titles in addition to the director	Director of Faculty Development
Manager	Oversees a group of employees and manages operations and activities of a unit	Instructional Technology Manager
Specialist	Skilled in a specific area or subject and concentrates on that activity	Instructional Accessibility Specialist
Designer	Designs courses, curriculum, training using learning theory and strategies	Instructional Designer
Developer	Possesses development skills in addition to design skills to create instructional material	Learning Content Developer
Technologist	Has expertise in specific technologies, for example maintaining the learning management system	Instructional Technologist
Coordinator	Organizes events and activities and ensure communication with clients and team members	Project Coordinator
Associate/Assistant	Support personnel and those in novice instructional roles	Instructional Support Associate
Other	In this study the other roles included consultants, technicians and analysts	Learning Consultant

Table 4 Description of competency domains in learning and development in higher education

Domain	Description	Example tasks
Strategic planning	The process of identifying a future direction that leads to effective change in an environment by setting goals, aligning structures and resources, and implementing the goals	Perform strategic administrative work using tact, discretion and by exercising independent judgment
Front-end analysis	The process of identifying specific learning needs or gaps in order to define goals and objectives, particularly at the beginning of a problem-solving process	Conducts needs analysis and performance analysis to develop learner-centered experience
Theories and framework	Knowledge and skills relating to teaching and learning theory and teaching pedagogy, including e-learning principles and instructional framework	Ensure the application and integration of appropriate teaching and learning theory and distance learning principles into a web-based course development process
Instructional design	Knowledge and skills relating to designing learning environments, learning materials, and instructional procedures resulting in acquiring knowledge and skills	Coordinate the design of instructional materials with sound instructional design principles, including alignment of educational objectives with content, activities, and assessments
Content development	Development of instructional content for instructor-led, online, and blended using various technologies	Develop a suite of printed and online tutorials and instructional materials for faculty and staff
Facilitate training	To offer training programs to facilitate the learning and development process of faculty and staff	Facilitate training sessions and workshops for faculty on educational technology topics
Assessment and evaluation	The development and application of measures to evaluate effectiveness in areas such as design approaches, instructional processes, and teaching and learning outcomes	Assist faculty in developing assessment measures to evaluate the instructional effectiveness of design approaches
Mentoring and coaching	Professional activities that are intentionally structured to create effective change in instructional effectiveness through mentoring and coaching (Harnish & Wild, 1994)	Mentor or direct other instructional designers, content specialists, web developers, graphic designers, faculty and staff, and/or external partners as needed in complex projects
Technology support	To serve in an intermediary role of meeting faculty and staff's inquiries, needs, and problems related to the effectiveness of instructional technology integration	Collaborate with Information Technology departments to facilitate the integration of technology and its broad adoption by faculty in all academic areas
Leadership and people management	Planning, cultivating, managing, and inspiring the success of faculty and staff internal to the institution (Burrus et al., 2017)	Provide campus leadership for the development and implementation of comprehensive, coordinated programming and support for faculty that promotes excellence and innovation in teaching, research, service, and community engagement

Table 4 (continued)

Domain	Description	Example tasks
Project management	A problem solving process through planning, organizing, directing, and controlling of resources for a finite period of time to complete specific goals and objectives (ATD, 2020)	Advanced skills in long-range planning and project management and the organizational skills to coordinate and prioritize a broad range of commitments, set and meet competing deadlines, and establish systems to track projects and other information effectively
Data analytics	Gathering and processing raw data to generalize useful information and conclusions as a means to evaluate instructional effectiveness and recommend improvements and changes	Collect and analyze data, create reports, review and explain trends to support marketing, admission, program delivery, and program design
Faculty development	A provision and process to enhance the efficiency and effectiveness of academic staff, particularly relating to his/her instructional capacity and teaching effectiveness (Blackmore, 2009)	Facilitate faculty members ongoing professional development to demonstrate mastery of best practices in teaching in alignment with the qualifications for tenure, rank, and promotion
Recruitment and marketing	The process of enlisting talent employers based on institution or program needs through identifying, attracting, screening, shortlisting, interviewing, and finalizing suitable candidates for a specific job/task	Recruit and retain qualified faculty members (full time and adjunct) to meet program needs
Communication	Interpersonal ability and skills require “active listening, facilitating dialogue, and the ability to express thoughts, feelings, and ideas clearly, concisely, and compellingly” in order to achieve desired objectives (ATD, 2020)	Ability to adapt and communicate successfully with different people and situations
Collaboration	To serve in an intermediary role of building positive and collaborative relationships with colleagues and departments within/outside the university to achieve a common goal	Ability to develop and maintain positive, collaborative relationships with faculty and staff
Student support	Responding to student inquiries and concerns to support effective learning	Support students with Blackboard learning process and successful learning strategies partnering with subject-matter experts and instructors to produce best-in-class content and interactive exercises that support student success
Policy development/Accreditation	Participating, coordinating, and monitoring the policy development and academic program accreditation both at the institutional and departmental level	Coordinate tasks related to accreditation and approvals and facilitate the preparation of required reports for internal and external stakeholders, organize site visits and follow up rejoinders

Table 4 (continued)

Domain	Description	Example tasks
Inclusiveness and accessibility	Contribution to the inclusive, respectful, and empowering working and learning environment that welcomes diverse perspectives for all learners	Proven relationship builder with a demonstrated commitment to mentoring others and cultivating a work culture that fosters inclusive collaboration
Others	In this study, the other generic competencies such as learning administration, institutional service were included	Participate as a member of several committees and potentially Chair the Online Learning Advisory committee

(21.09%) and technologist (13.27%). Also, designers ($M=9.32$), executives (9.18) and directors (9.02) were required to be competent in the most number of competency domains.

Learning and development competency domains

For the twenty competency domains identified, the number of postings and percentages of total postings required each competency is included in Table 6. Collaboration (89.12%), communication (75.51%), content development (71.43%), project management (71.09%), and assessment and evaluation (64.97%) were the most required competency domains in the job postings. The least required were policy development (10.88%), mentoring and coaching (15.31%), Inclusiveness and accessibility (16.67%), recruitment and marketing (17.69%), and data analytics (19.39%).

Learning and development roles and competency domains

Each L&D role was analyzed for the competency domains. Table 7 below gives us an overview of the various competency domain requirements in the job postings for the different roles. The frequency of competencies in the job postings by the job role is included in Table 7.

Table 8 includes the top five competency domains that were identified for an individual in each role to be competent. If two or more competencies are listed in the same box, each competency was advertised in an equal number of instances.

Competencies for leadership roles and importance of collaboration and communication

The executive and director leadership roles required the following competencies: leadership and people management, collaboration, assessment and evaluation, project

Table 5 Descriptive statistics by learning and development roles

Role	Number of postings	Percentages	Ave no. of competency domains	SD
Executive	11	3.74	9.18	2.23
Director	62	21.09	9.02	2.52
Manager	16	5.44	7.94	2.93
Specialist	27	9.18	8.85	1.75
Designer	77	26.19	9.32	2.47
Developer	6	2.04	8.17	3.25
Technologist	39	13.27	8.03	2.44
Coordinator	24	8.16	8.71	2.80
Associate/Assistant	11	3.74	7.18	2.68
Other	21	7.14	7.38	2.84

Table 6 Descriptive statistics by L&D competency domains

No.	Competency domains	Number of post-ings	Percentages
D1	Strategic Planning	97	32.99
D2	Front-end Analysis	65	22.11
D3	Theories and Frameworks	139	47.28
D4	Instructional Design	182	61.90
D5	Content Development	210	71.43
D6	Facilitate Training	187	63.61
D7	Assessment and Evaluation	191	64.97
D8	Mentoring and Coaching	45	15.31
D9	Tech/Infrastructure Support	141	47.96
D10	Leadership & People Management	128	43.54
D11	Project Management	209	71.09
D12	Data Analytics	57	19.39
D13	Faculty Development	137	46.60
D14	Recruitment and Marketing	52	17.69
D15	Communication	222	75.51
D16	Collaboration	262	89.12
D17	Student Support	104	35.37
D18	Policy Development, Accreditation	32	10.88
D19	Inclusiveness and Accessibility	49	16.67
D20	Other	52	17.69

management, and communication competencies in their top five competency domains. The manager required project management and technology support and overlapping competencies requirement with the executive and director. Regarding specialist, designer, and developer roles, the top competencies emphasize instructional design, content development, project management, communication, and collaboration. Comparatively, among the nine roles examined, instructional design competencies were a requirement for four roles: designer, developer, technologist, and assistant/associate roles. Content development competency was required of four roles: designer, developer, coordinator, and assistant/associate.

We found that communication and collaboration are essential competencies for all nine learning and development roles examined in this study, as they were ranked within the top five rankings for each role. For the manager, communication and collaboration ranked the highest. For executives, specialists, technologists, associate/assistant, collaboration was also ranked high. These rankings show the importance of communication and collaboration in L&D roles in higher education.

Table 7 Learning and development roles and competency domains

	Executive	Director	Manager	Specialist	Designer	Developer	Technologist	Coordinator	Associate/ Assistant	Other
Strategic planning	6	35	4	6	22	3	9	7	3	2
Front-end analysis	2	13	4	8	23	0	4	3	3	5
Theories and frameworks	2	27	7	15	54	3	10	10	2	9
Instructional design	2	29	5	19	74	5	20	12	5	11
Content development	5	28	7	21	74	6	31	15	8	15
Facilitate training	4	35	5	24	50	3	32	13	5	15
Assessment and evaluation	9	44	11	17	56	3	24	9	6	11
Mentoring and coaching	3	12	1	4	14	0	2	5	2	2
Tech/infrastructure support	2	14	10	16	34	3	32	13	8	9
Leadership and people management	10	57	9	6	19	1	5	13	1	7
Project management	9	44	12	20	55	6	28	17	7	11
Data analytics	3	13	3	7	10	0	8	7	3	3
Faculty development	6	39	4	16	36	0	15	10	2	9
Recruitment and marketing	7	16	7	5	2	0	3	7	2	3
Communication	9	41	13	22	56	6	30	22	7	16
Collaboration	10	53	13	26	72	5	34	23	9	17
Student support	5	26	4	4	25	1	15	12	5	7
Policy development, accreditation	3	17	3	0	3	0	1	2	0	3
Inclusiveness and accessibility	4	12	4	1	12	3	2	5	0	6
Other	4	1	2	4	1	1	0	27	8	0

Table 8 Learning and development competency domains most required

Role/Rank	1	2	3	4	5
Executive	Leadership and People Management/Collaboration	Assessment and Evaluation/Project Management/Communication			
Director	Leadership and People Management	Collaboration	Assessment and Evaluation/Project Management	Communication	
Manager	Communication/Collaboration	Project Management	Assessment and Evaluation	Technology/Infrastructure Support	Project Management
Specialist Designer	Collaboration	Facilitate Training	Communication	Content Development	
Developer	Instructional Design/Content Development	Collaboration	Assessment and Evaluation/Communication		
	Content Development/Project Management/Communication	Instructional Design/Collaboration			
Technologist	Collaboration	Facilitate Training, Technology/Infrastructure Support	Content Development	Communication	
Coordinator	Other	Collaboration	Communication	Project Management	Content Development
Associate/Assistant	Collaboration	Content Development	Technology/Infrastructure Support	Other	Project Management/Communication

Table 9 Educational experience and job postings

Education	Number of job postings	Percentage
High school diploma	5	1.70
Associate degree	3	1.02
Bachelors	152	51.7
Masters	103	35
Doctoral	15	5.1
Not listed	16	5.4

Table 10 Educational experience and job postings cross tab analysis

Roles	High school	Associate	Bachelors	Masters	Doctoral	Total
Executive	0	0	1	3	6	10
Director	0	0	16	32	9	57
Manager	0	0	12	2	0	14
Specialist	0	0	21	6	0	27
Coordinator	0	1	15	6	0	22
Designer	1	1	38	35	0	75
Developer	1	0	3	2	0	6
Associate/Assistant	3	1	2	4	0	10
Technologist	0	0	30	7	0	37
Other	0	0	14	6	0	20
Total	5	3	152	103	15	278

Educational experience

The 294 job postings were also coded for the minimum required educational experience. About half of the postings required a Bachelor's degree (51.7%), and about a third of the postings required a Master's degree (35%). Some postings required either the bachelor's or master's degree qualifications. Those were coded as Bachelors because we considered the lowest degree required as the minimum requirement. About 16% of the postings did not provide an educational requirement. Educational experience required in job postings is included in Table 9.

A cross tab analysis was conducted to identify the degree required for the different roles (see Table 10). All the fifteen positions that required doctoral degrees were for executive and director positions. Manager, specialist, and technologist positions required either a bachelor's or master's degree.

Years of experience

The 294 jobs were coded for years of experience. About 23.5% required three years' experience, while about 20.4% of the jobs required two years of experience. About a quarter of the jobs (23.5%) did not provide experience requirements. When a range of years was listed in the job announcement, the lowest year in the range was included as the minimum requirement (Table 11).

While we did a cross-tab analysis of years of experience and roles, the data did not include any meaningful findings. For example, there were director postings requiring one year of experience and designer postings requiring seven years of experience.

Discussion

In this section below, we discuss the findings from this study.

Varied and most advertised postings in learning and development

There were ten different roles in learning and development in higher education, including the other category. Understanding the different competency domain requirements of these positions assists individuals and programs to prepare candidates for these roles successfully. A lot of educational programs and research focus solely on the instructional design role. Wang et al. (2020) examined 185 professional competencies for instructional designers by reviewing 1030 unique job announcements and analyzed by the different instructional setting. Ritzhaupt and Kumar (2015) examined competencies for instructional designers in higher education by interviewing eight instructional designers. While these are important and more in number, there are also several positions at the leadership level such as executive, director, and manager and at support roles such as coordinator, associate/assistant

Table 11 Years of experience and job postings

Years of experience	Number of postings	Percentage of jobs
1 year	25	8.50
2 years	60	20.4
3 years	69	23.5
4 years	13	4.4
5 years	34	11.6
6 years	6	2.0
7 years	10	3.4
8 years	3	1.0
10 years	5	1.7
Not mentioned	69	23.5

that have various positions and skills for which candidates could be better prepared. Klein and Kelly (2018) examined 393 job announcements for instructional designers and interviewed 20 instructional design project managers to identify competencies for instructional designers. Due to the various roles available, the promotion path in L&D in higher education has to be made clear to the L&D professionals (Prusko, 2020).

Designers were the most advertised position (26.19%), followed by director (21.09%) and technologist (13.27%). Beirne and Romanoski (2018) discussed the growing demand for instructional designers in higher education as faculty face increased pressure to teach online and hybrid courses. In addition, administrators recognize that faculty need support from instructional designers who can assist in this transition. Our study confirmed this finding that designers were in demand. In addition to designers, technologists were also sought after in higher education, as indicated by the emerging needs of instructional technology integration in previous literature (Intentional Futures, 2016; Richey et al., 2001; Ritzhaupt & Kumar, 2015; Sugrue et al., 2018). There is also a need for leaders to direct learning and development divisions.

Competency domains most required

Across the ten roles, including the other category, collaboration (89.12%), communication (75.51%), content development (71.43%), project management (71.09%), and assessment and evaluation (64.97%) were the most required competency domains. Collaboration and communication competencies were required in most of the roles. Collaboration skills and communication skills have remained a vital competency across the roles for several years. Recently, Klein and Kelly (2018) found collaboration skills as a required competency among 75% of job postings and communication skills as required among 57% of the postings. Wang et al. (2021) found that collaboration skills, content development skills, oral and written communication skills, and ability to develop course materials, ability to create effective instructional products, ability to advise and consult with Subject Matter Expert were frequently occurring competencies in their job announcement analysis. Kang and Ritzhaupt (2015) and Ritzhaupt et al. (2010), a few years ago in their job announcement analysis, confirmed that both oral and written communication skills were key competencies for educational technologists. Our findings show the continued importance of communication and collaboration with the diverse stakeholders and team members involved in the learning and development jobs, which indicated the collaborative nature of learning and development for academic development in higher education (Sugrue et al., 2018).

Project Management competency was required in 71% of the postings. In most L&D roles, these professionals also serve as the project managers, establish processes and strategies, and use technologies to complete tasks in a timely and effective manner (Gardner et al., 2017). In this study, Gardner et al. (2017) drew the relationship between instructional design phases and project management processes of initiating, planning, executing, and monitoring, and control and also

discuss the importance of managing integration, scope, time, cost, quality, human resources, communication, risk, procurement, and stakeholders. Kline et al. (2020), when interviewing 13 educational technology project managers, found the following themes to emerge on project management knowledge, Project Team Management, Project Management Foundations and Practice, Project Scope and Needs Assessment, Project Scheduling & Time Management, Project Stakeholder Engagement, Project Budgeting, and Cost Management and Project Resource Estimation and Management. Koszalka et al. (2013) have emphasized the project-based nature of the field, and hence project management is a key aspect of practice for instructional designers. IBSTPI included a separate set of competencies for training managers who were in roles to manage training projects.

Executive and director leadership positions required leadership and people management competencies, project management, communication, collaboration and assessment, and evaluation competencies. Leadership and people management competencies were rated as the most required in the leadership positions, which indicate these leadership and management positions are responsible for faculty and staff development (Marshall et al., 2011; Mukherjee & Singh, 1993). Doctoral programs preparing students for leadership roles in learning and development should prepare their students on these competencies.

Instructional design, facilitate training, and content development were required in several job postings. Instructional design competencies were required for Designer, Developer in the top 5 rankings, and content development competencies required for Specialist, Designer, Developer, Coordinator, Assistant/Associate in the top 5 rankings. These skills differentiate the learning and development professional from project managers or directors who may not be prepared to lead in learning and development roles. While facilitating training was required in 63% of the jobs, content development was required in 71% and instructional design was required in 61% of the jobs.

Drawing on these findings, we conceptualize four levels of learning and development roles in higher education contexts (See Fig. 1):

1. emphasizing the responsibilities of *senior leadership*, including executives, directors and managers focusing on leadership and people management, project management, assessment and evaluation
2. *learning management*, including managers and coordinators who are responsible for project management, technology/infrastructure support, and assessment and evaluation
3. the *learning and development core professionals*, including designers, developers, technologists, and specialists responsible for content development, instructional design, and technology/infrastructure support
4. finally, the *learning and development support*, including associates/assistants, are responsible for content development, project management, and technology/infrastructure support.

Communication and Collaboration skills were required of all the different learning and development roles.

Educational experience, years and roles

The cross-tab analysis identified that all fifteen postings that required doctoral degrees were for executive and director roles. These results show that to be a leader in L&D, a doctoral degree is required. On the other hand, Manager, Specialist and Technologist roles required either Bachelors or Master's degrees. There were 152 postings that required a Bachelor's degree, while 103 postings required a Master's degree. Bachelor's degrees in Learning, Design and Technology are not as common as Master's degrees in the United States. This shows the need for more programs at the Bachelors's level to build the potential for students to acquire these jobs after their undergraduate degree. While educational degrees had some relationship to roles, years of experience data did not have any relationship.

Limitations

There are a few limitations to this job announcement analysis. We used only one higher education job board and analyzed postings from a short period of time. The postings were mainly from the United States, with a couple of exceptions from Canada. Therefore, these findings while they can be generalized to the US audience, they might have to be interpreted carefully for the rest of the world. The job postings were of different lengths. While some postings had a lot of detail, some did not. The length and amount of detail depended on who wrote the job posting, or it was a standard job posting from the human resources without the hiring team



Fig. 1 Learning and development roles and domains

involved. Finally, these postings were from 2019, and while these are important roles and domains for the next few years, this could change in the next decade and may have already changed substantially due to the Covid-19 pandemic. With the limitations identified, this study still has the potential to inform on the roles and competency domains in learning and development in higher education.

Implications and future research

The findings from this job announcement analysis have implications for students and job seekers who wish to obtain a job in learning and development in higher education, instructional design, and technology programs which prepares students for these roles, employers who hire for these positions, professional organizations who provide support for learning and development employees and for researchers who wish to study this topic.

Overall, the results reinforce the importance of communication and collaboration competencies along with project management competencies for all learning and development positions. For those in leadership roles, the importance of leadership and people management was also emphasized. It is important for students and job seekers to work towards the role they wish to apply for and be prepared with the competencies for that role. It is essential for credit-based programs and professional organizations to include these competencies in their curriculum and offerings for their students and participants. Also, this gives employers and hiring managers guidance on the competencies required for someone to be hired in this position. It also gives writers of future job postings guidance as to the competencies they may wish to see in new hires.

Finally, this study provides room for researchers to build on these findings to address both theory and practice questions for various roles in learning and development. This study primarily focused on positions in North America. There is still a need for research to examine job postings across the world. There is also room to use another methodology, such as surveying and interviewing professionals, and to add to the roles and competencies of learning and development professionals in higher education. Triangulating data from job announcements with survey and interview data will assist in analyzing needs and practice for various L&D positions. In addition, future research is also important to examine curriculum offerings and professional development preparation for these various roles. Periodic analysis of competencies is essential due to the changes in the technologies and the expectations in these roles.

Funding There was no funding received for this project.

Declarations

Conflict of interest This is to acknowledge that there is no financial interest or benefit that has arisen from the direct applications of this research.

References

- AECT Standards, 2012 version. (2012). Retrieved August 2, 2020, from <https://www.aect.org/docs/AECTstandards2012.pdf>.
- APA PsycNet. (2020). Retrieved August 2, 2020, from <https://doi.apa.org/doiLanding?doi=10.1037/mgr0000102>.
- Association for Talent Development (2014). *ATD competency model*. Retrieved from <https://www.td.org/certification/atd-competency-model>.
- Association for Talent Development (2020). *Talent development glossary terms*. Retrieved from <https://www.td.org/glossary-terms>.
- Beirne, E., & Romanoski, M. P. (2018). Instructional design in higher education: Defining an evolving field. In *OLC outlook: An environmental scan of the digital learning landscape*.
- Bengtsson, M. (2016). How to plan and perform a qualitative study using content analysis. *Nursing-Plus Open*, 2, 8–14.
- Blackmore, P. (2009). Conceptions of development in higher education institutions. *Studies in Higher Education*, 34(6), 663–676. <https://doi.org/10.1080/03075070902785598>
- Burrus, J., Mattern, K. D., Naemi, B. D., & Roberts, R. D. (2017). Establishing an international standards framework and action research agenda for workplace readiness and success. In J. Golubovich, R. Su, & S. B. Robbins (Eds.), *Building better students: Preparation for the workforce* (pp. 303–338). Oxford University Press.
- Cavalier, D., Gibbons, T., Halfond, J., Lambert, H., Novak, R., ... & Wu, D. (n.d.). *UPCEA hallmarks of excellence in professional and continuing education*. Retrieved August 2, 2020, from <https://upcea.edu/wp-content/uploads/2017/03/UPCEA-Hallmarks-of-Excellence-in-Online-Leadership.pdf>.
- Chao, I. T., Saj, T., & Hamilton, D. (2010). Using collaborative course development to achieve online course quality standards. *International Review of Research in Open and Distance Learning*, 11(3), 106–126.
- El Asame, M., & Wakrim, M. (2018). Towards a competency model: A review of the literature and the competency standards. *Education and Information Technologies*, 23(1), 225–236.
- Gardner, J., Bennett, P. A., Hyatt, N., & Stoker, K. (2017). Applying project management strategies in a large curriculum conversion project in higher education. *Online Journal of Distance Learning Administration*, 20(3).
- Harnish, D., & Wild, L. A. (1994). Mentoring strategies for faculty development. *Studies in Higher Education*, 19(2), 191–201. <https://doi.org/10.1080/03075079412331382037>
- I4PL (2020). *Institute for performance and learning*. Retrieved from <https://performanceandlearning.ca/page/I4PLAboutUs>.
- Intentional Futures (2016). *Instructional design in higher education*. Retrieved from <https://intentionalfutures.com/static/instructional-design-in-higher-education-report-5129d9d1e6c988c254567f91f3ab0d2c.pdf>.
- International Board of Standards for Training, Performance and Instruction (2012). *Instructional design competencies*. Retrieved from <https://ibstpi.org/download/?did=2705&file=0>.
- Jacobs, S. (2017). *L&D executives seek learning architects*. Retrieved from <https://learningsolutionsmag.com/articles/2443/ld-executives-seek-learning-architects>.
- Kang, Y., & Ritzhaupt, A. D. (2015). A job announcement analysis of educational technology professional positions: Knowledge, skills, and abilities. *Journal of Educational Technology Systems*, 43(3), 231–256.
- Klein, J. D., & Kelly, W. Q. (2018). Competencies for instructional designers: A view from employers. *Performance Improvement Quarterly*, 31(3), 225–247. <https://doi.org/10.1002/piq.21257>
- Kline, J., Kumar, S., & Ritzhaupt, A. D. (2020). Project management competencies of educational technology professionals in higher education. *The Journal of Applied Instructional Design*, 9(3).
- Koszalka, T. A., RussEft, D. F., & Reiser, R. (2013). *Instructional designer competencies: The standards* (4th ed.). Information Age Publishing.
- Kumar, S., & Ritzhaupt, A. (2017). What do instructional designers in higher education really do? *International Journal on E-Learning*, 16(4), 371–393.
- Lieberman, M. (2018). *Learning engineers inch toward the spotlight*. Retrieved August 2, 2020, from <https://www.insidehighered.com/digital-learning/article/2018/09/26/learning-engineers-pose-challenges-and-opportunities-improving>.

- Marshall, S. J., Orrell, J., Cameron, A., Bosanquet, A., & Thomas, S. (2011). Leading and managing learning and teaching in higher education. *Higher Education Research & Development*, 30(2), 87–103. <https://doi.org/10.1080/07294360.2010.512631>
- McDonald, J., & Mayes, T. (2007). The changing role of an instructional designer in the implementation of blended learning at an Australian university. In *Instructional design: Case studies in communities of practice* (pp. 170–192). IGI Global.
- Mukherjee, H., & Singh, J. S. (1993). *Staff development approaches in higher education: Learning from experience*. Commonwealth Secretariat.
- O’Keefe (2018). *The many hats of an instructional designer*. Retrieved from <https://www.td.org/insights/the-many-hats-of-the-instructional-designer>.
- Richey R. C., (Ed.), Fields, D.C. & Foxon, M. (2001). (With Roberts, R. C., Spannaus, T., & Spector, J. M.). *Instructional design competencies: The standards* (3rd ed.). ERIC Clearinghouse on Information & Technology. International Board of Standards for Training and Performance Improvement (ibstpi).
- Ritzhaupt, A. D., & Kumar, S. (2015). Knowledge and skills needed by instructional designers in higher education. *Performance Improvement Quarterly*, 28(3), 51–69.
- Ritzhaupt, A. D., & Martin, F. (2014). Development and validation of the educational technologist multimedia competency survey. *Educational Technology Research and Development*, 62(1), 13–33.
- Ritzhaupt, A., Martin, F., & Daniels, K. (2010). Multimedia competencies for an educational technologist: A survey of professionals and job announcement analysis. *Journal of Educational Multimedia and Hypermedia*, 19(4), 421–449.
- Sims, R. C., & Koszalka, T. A. (2008). Competencies for the new-age instructional designer. *Handbook of Research on Educational Communications and Technology*, 3, 569–575.
- Sugrue, C., Englund, T., Solbrekke, T. D., & Fosslund, T. (2018). Trends in the practices of academic developers: Trajectories of higher education? *Studies in Higher Education*, 43(12), 2336–2353. <https://doi.org/10.1080/03075079.2017.1326026>
- The LPI Capability Map (2012). *The LPI Capability Map—assessing essential skills in the new age of L&D*. Retrieved from <https://www.thelpi.org/resources/capability-map/>.
- Van Rooij, S. W. (2012). The career path to instructional design project management: An expert perspective from the US professional services sector: Career path to instructional design project management. *International Journal of Training and Development*, 17(1), 33–53.
- Wang, X., Chen, Y., Ritzhaupt, A., & Martin, F. (2020). Examining competencies for the instructional design professional: An exploratory job announcement analysis. Presentation at the Association for Educational Technology Conference.
- Wakefield, J., Warren, S., & Mills, L. (2012). Traits, skills, and competencies aligned with workplace demands: What today’s instructional designers need to master. In P. Resta (Ed.), *Proceedings of society for information technology and teacher education international conference* (pp. 3126–3132).

Publisher’s Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Florence Martin is a Professor in Learning, Design and Technology at the University of North Carolina Charlotte. Dr. Martin engages in research focusing on the effective design of instruction and integration of digital technology to improve learning and performance.

Yan Chen is a Postdoctoral Fellow in the Program of Organization, Information and Learning Sciences and the Department of Chemical and Biological Engineering at the University of New Mexico. Her research interests focus on computer-supported collaborative learning, learning sciences, instructional design, and educational equity for multicultural/multiethnic education.

Beth Oyarzun is a Clinical Assistant Professor at University of North Carolina at Charlotte. Prior to joining UNCC, she served as an instructional designer in the higher education environment for more than ten years. Her research interests are related to her teaching practice and she strives to identify effective strategies for online teaching and learning.

Mark Lee is an Adjunct Senior Lecturer, School of Education Charles Sturt University and current President of the International Board of Standards for Training, Performance and Instruction. He is an educational technology and learning sciences researcher and practitioner.