Instructional Design for Me:

An Effective and Efficient Way to Motivate Learners in Self-regulated Learning

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The most important aspects of ID Profession and ADDIE

- Nowadays instructional design has been an established profession as well as an area of study. As a profession, it consists of a series of well-defined competencies, which are an internationally validated set of standards that define a competent instructional designer.
- The competencies are composed of 5 domains divided into 22 instructional designer competencies that are supported by 105 performance statements.
- The five domains include: professional foundations, planning and analysis, design and development, evaluation and implementation, and management.

The most important aspects of ID Profession and ADDIE

- All statements, competencies and performance statements can be demonstrated at various level of experience… essential, advanced, and managerial.
  - Essential statements are those competencies that all instructional designers are expected to develop.
  - Advanced statements are those competencies that are experienced instructional designers are expected to have.
  - Managerial statements are those competencies that instructional design or educational project managers are expected to have.

The most important aspects of ID Profession and ADDIE

- These ID competencies serve many purposes in the profession. They are used as hiring guidelines, evaluation criteria, and professional development guidelines. They can help build my competencies and support my ongoing professional development in my future career.
- On the other hand, as an area of study, it has a rich and growing foundation of research and theory viewed from diverse points of view. Both the practice and the study of ID can be seen in two ways: as strategies for creating particular products and as the implementation and management of the overall design process.
- Competent instructional designers can use instructional design theories and research-based principles of instruction and learning to inform their design thinking, use instructional design processes to inform their strategic work processes and activities and technical tools or equipment that best support learning and delivery of instruction to create well-designed instruction.

The most important aspects of ID Profession and ADDIE

- A 5-Step process for efficient and effective learning and evaluation
- All five phases are equally important, but in practice, most effort is often put into the Design and Development stages
- ADDIE is an ideal framework…

Summary of early historical and foundational trends

- Previous research has been conducted based on student learning. The future trend would still be focused on instructional practices that teachers can use to facilitate students' learning. We have learned ample traditional theories of instruction. However, as time goes on, there should be some reforms to meet the current learning environment. More educational practices would be integrated into theoretical frameworks.

Summary of early historical and foundational trends

- A variety of instructional systems theories have had a profound and persistent influence on educational practice in K-12 settings.
- B.F. Skinner, the father of operant conditioning, is usually credited with the development of programmed instruction.
- The concept of task analysis was applied to general education in early work by Frank and Lillian Gilbreth, expanded by Robert Miller (Miller, 1953) and utilized by Gagne (1987) as part of his description of the hierarchical nature of learning.
- Bloom suggested a variety of strategies that can be used in classrooms to provide conditions for mastery learning including the use of tutors, small group study, peer tutoring, programmed instruction, audiovisual materials and games.
- Robert Gagne is best known for his development of a model of instruction based on human learning. Prior to Gagne, learning was often conceptualized as a single, uniform concept.
- Madeline Hunter. She suggests that her strongest contribution to education was not additional theory, but the development of the technologies needed by teachers to implement new theories of learning.

Summary of early historical and foundational trends

- There are still unanswered questions for future research. The ultimate goal of developing theories is to facilitate learning .
- The other is technology-based learning instruction. With the development of technology, how people can utilize advanced technology to best help students in the learning process. This is another trend. With the development of simulation, robot program, IR, VR, IVR and AI, how can we take advantage of them and create a better learning environment and support students to reach a higher learning and thinking level? Educators should be skilled at incorporating technology when approaching a problem and solving it using reasoning, creativity and expression, as well as providing a new way to demonstrate content knowledge.
- In the future research, as technological advances, new ideas and theories regarding the learning process and new views of how to promote learning and performance in classrooms and in the workplace will be the trend.

Summary of my initial review of journal trends

- These are the four journals I have reviewed.

- Over the last 5 years there were 20 issues published with a total of 82 articles.
- Of those articles I can get access to, 8% were focused on “practices”; 92 % were focused in “research”.
- A few papers only have the title and authors. I can’t get enough information, so I didn’t include them in my report.
- A majority of the published articles in the journal were focused on investigating the effectiveness of the new models, some programs, standards, assessment tools, methods, and strategies.
- Cover the widest field of the 4 journals

Screenshot of the latest issues

Issue 1:	Issue 2:	Issue 3:	Issue 4:
● An integrative literature review of the information-systems literature to develop an analytics system model and hierarchy of outputs. ● Examining whether and how formal mentoring programs could impact psychological capital and employee engagement, two key business drivers that can directly affect an organization's bottom line ● Cognitive task analysis (CTA) methods used to examine the concept of cognitive readiness in the context of violent police–citizen encounters. ● developing and testing a multilevel model in which employee effort mediates the impact of HPWS on	● Discussion on generational attitudes towards learning and technology ● Examining how organizational-learning culture, cultural intelligence (CQ), and transformational leadership influence job performance ● Examining the effects of a psychosocially safe environment and two types of shared leadership on project team creativity ● Investigating the dynamics of transfer by applying a taxonomy that identified five distinct types of use	● Examining the mediating effects of loyalty and employee self-determination (ESD) on organizational-based self-esteem (OBSE) and employee impact ● A retrospective design employed to examine the factors affecting transfer generalization and maintenance of managerial-leadership skills from a 12-month training program. ● Investigating the effects of brief mindfulness-meditation exposure on interviewee performance in responding to interview questions in an employment interview. ● The case study to understand the relationship between	● Exploring the relevance of Thomas Gilbert's Behavior Engineering Model (BEM) in an emerging market environment ● Investigate four workforce flexibility strategies used in export-based firms ● An overview of the tool the Organizational Performance Index's development and reliability along with validity-testing results. ● A literature review to develop a proposed conceptual model for investigating factors associated with human resource development and persons with disabilities in the workplace.

Summary of my initial review of journal trends

- These are the four journals I have reviewed.

- Over the last 5 years there were 30 issues published with a total of 172 articles. The total number of the articles is 85. Of those articles I can get access to,9% were focused on “practices”; 91 % were focused in “research”.
- A majority of the published articles in the journal were focused on investigating the effectiveness of the new models, some programs, standards, assessment tools, methods, and strategies. Some of the articles are focused on perceptions and the cause and effect relationships. This is similar to PIQ. In the latest issues, there are more articles on practices, especially in 2018.
- New terminologies are burgeoning, in latest issues, we have seen L2 incidental vocabulary learning, service learning.
- About 5 articles are about self-regulated learning, but the research was conducted from a very specific angle.

1 The value of fixed versus faded self-regulatory scaffolds on fourth graders' mathematical problem solving 2 Fading distributed scaffolds: the importance of complementarity between teacher and material scaffolds 3Using TIMSS items to evaluate the effectiveness of different instructional practices 4 Investigating the effects of writing tasks and prompts on knowledge integration across domains 5 Investigating whether learning by writing explanations can be enhanced when students additionally receive computer-based feedback on the cohesion of their explanations	1Emotion regulation tendencies, achievement emotions, and physiological arousal in a medical diagnostic reasoning simulation 2 Fostering creative performance in art and design education via self-regulated learning 3 Bolstering students' written argumentation by refining an effective discourse intervention: negotiating the fine line between flexibility and fidelity 4 A specific benefit of retrieval-based concept mapping to enhance learning from texts 5 A pre-post-test design with a follow-up 4 weeks later to investigate whether a computerised training in identifying structural components of informal arguments can improve university students' competences to understand complex arguments.	1 How the problem-solving process in successful tutoring situations differs from that in unsuccessful tutoring situations with regard to cognition, motivation and increasing task complexity 2 Effects of problem–example and example–problem pairs on gifted and nongifted primary school students' learning 3 Investigating the impact of spacing on L2 incidental vocabulary learning. 4 Immediate and delayed effects of a modeling example on the application of principles of good feedback practice: a quasi-experimental study 5 Two experiments investigated the extent to which the concreteness of titles affects metacognitive text expectations, study motivation, and comprehension test performance.	1 Investigating cognitive style (the visualizer–verbalizer dimension) and cognitive ability (spatial and verbal abilities) in terms of corresponding resource use behavior. The study further examined the potential link 2 Examining Chinese kindergarten children's psychological needs satisfaction in problem solving: A self-determination theory perspective 3 Examining the effects of service-learning on student outcomes 4 The effects of totally or partially self-generating a graphic organizer on students' learning performances 5 Developing a smart K-12 classroom infrastructure to support real-time student collaboration and inquiry: a 4-year design study

Summary of my initial review of journal trends

- The characteristics of the content:

1. design (instructional design theories, models, programs, strategies)for effective and efficient learning gained importance
2. These areas are mostly covered in the four journals: collaborative learning; instructional design; ICT; perceptions of students and teachers; Web 2.0; pedagogy; motivation; educational technology; online discussion; interaction;
3. Practices and interventions are being applied in more areas, including Airforce, engineering, communication, management, sociology, psychology, business, conglomerate, African community, marketplace.
4. Most of the researchers employed qualitative or quantitative designs in the earier issues, in the latest issues more researchers employed mixed designs.
5. Of all qualitative research designs, case studies are predominant.
6. Of all quantitative research design, The majority of the designs are survey design. Some people employed correlational design that demonstrates the relationship between variables and the experimental designs used to test cause-and-effect relationships between variables hold.

Thank You !

Instructional Science-Year 2015(35 papers)

Notes: In the following charts, texts highlighted in yellow are practices; texts highlighted in fuchsia are empirical studies on the impact or the effectiveness of interventions; the fonts in red are the papers related to my research interest.

Issue 1	Issue 2:Teachers' Designing	Issue 3	Issue 4
1 The effect of using instructor-selected literature resources or student-selected literature resources on several learning outcome variables. **2 Validity of the learning portfolio** **3 Measuring cognitive load with subjective rating scales** **4 Peer facilitation of asynchronous online discussions** **5 Answering questions after initial study guides attention during restudy** **6 3D-representation instruction on composite-solid surface-area learning** **7 Investigating whether and how illustrations that represent the problematic situation described in a P-item help** **8 Individual differences in working memory capacity as a potential moderator of feedback type**	1 How specific technology features afforded their customizations 2 Teachers as participatory designers 3 Collaborative design as a form of professional development 4 Identifying a 'fingerprint pattern' of supports for teachers' designing 5 Teachers as designers of technology enhanced learning (TaD of TEL) 6 Teacher design knowledge for technology enhanced learning: an ecological framework for investigating assets and needs 7 Teacher design knowledge for technology enhanced learning: an ecological framework	1 The role child factors on the acquisition and transfer of learning the control of variables strategy (CVS) via instruction or self-discovery 2 Correlations with both collaborative learners' content processing strategies and the level of transactivity in their discussions. 3 Compare effects of instructions 4 Developing and validating using Mokken scale analysis to assess the extent to which kindergartners are able to construct unconfounded experiments 5 Evaluating the contribution of fluid and crystallized abilities in the performance of a 1-week instructional process with an old dataset applying a latent curve model 6 Examining the nature of cognitive, metacognitive, and affective processes among a medical team experiencing difficulty managing a challenging simulated medical emergency case by conducting in-depth analysis of process data	1 Unravel the impact of critical thinking instructions, practice, and self-explanation prompts during practice, on students' reasoning skills 2 Examining how inconsistencies in one but not the other explanation influence the evaluation and comprehension of pairs of competing explanations 3 Using mental computation training to improve complex mathematical performance 4 Investigating the effectiveness of three different versions of a training programme on physician–patient and teacher–parent conversations for medical students and student teachers
Issue 5	**Issue 6**		
1 The effects of scaffolding in the classroom: support contingency and student independent working time in relation to student achievement, task effort and appreciation of support	1 Examining technical and further education teachers' perceptions of ICT-enhanced teaching 2 Differentiate effects of gesture type in guiding young children's problem-solving		

2 An investigation of the effects of valence and arousal on different modalities in an instructional animation **3 Understanding the benefits of providing peer feedback: how students respond to peers' texts of varying quality** **4 Investigating how graduate students explore the idea generation process** **5 Collaboration, intragroup conflict, and social skills in project-based learning**	3 The impact of a peer-led, open-format discussion approach 4 Examining learners' spontaneous sourcing as they read divergent expert accounts of a socio-scientific controversy 5 The impact of classroom context upon 1st and 2nd grade students' critical criteria for science representations

Summary of one article

Citation: Gartmeier, M., Bauer, J., Fischer, M. R., Hoppe-Seyler, T., Karsten, G., Kiessling, C., . . . Prenzel, M. (2015). Fostering professional communication skills of future physicians and teachers: Effects of e-learning with video cases and role-play. *Instructional Science, 43*(4), 443-462. doi:10.1007/s11251-014-9341-6

This article investigated the effectiveness of three different versions of a training programme on physician–patient and teacher–parent conversations for medical students and student teachers. The research questions concerned the differential effects of e-learning featuring contrastive video cases, role-play including video feedback and their combination. The training effects were tested to determine whether they were similar across both professional domains. It best represents the trend because24 out of 35(69%) articles were focusing on the effectiveness or impact of different interventions. The articles in 2015 focused on the measurement of different strategies, instruction, teachers' design of technology-enhanced learning, training programmes, and other interventions.

Instructional Science-Year 2016(29 papers)

Issue 1	Issue 2	Issue 3	Issue 4
1 How the children take on this task is studied in terms of how they dialogically co-construct pedagogical and musical values throughout the collaborative tasks **2 Cognitive load theory and the effects of transient information on the modality effect** **3 Analyzing how one beginning middle primary teacher engaged with students to support their science learning by establishing rich classroom discussions** **4 Simulation-Based Evaluation of Learning Sequences for Instructional Technologies** **5 Revising lecture notes: how revision, pauses, and partners affect note taking and achievement** **6 Investigating whether the effectiveness of learning how to solve a probability calculation problem from video modeling examples would vary as a function of the model's and observer's gender**	1 A multivariate model of conceptual change 2 A comparison of two methods of active learning in physics: inventing a general solution versus compare and contrast 3 Effects of comparing contrasting cases and inventing on learning from subsequent instructional explanations	1 Investigating the impact of instructors' different knowledge bases on the quality of their instructional explanations 2 Investigating differences in how expert and novice teachers perceive problematic classroom scenes 3 Teachers' formative assessment abilities and their relationship to student learning: findings from a four-year intervention study 4 Intra-individual differences in developing professional vision: preservice teachers' changes in the course of an innovative teacher education program 5 Investigating teachers' professional vision and discourse abilities 6 Describing the specific difficulties due to the time characteristics of the multiple, simultaneous events happening in classrooms, the lack of information on results, and the validity and usability of the shared knowledge-base 7 Investigating the extent to which tutors are interactive and engage in dialogue with a student tends to depend on their pedagogical expertise	1 The impact of procedural and epistemological knowledge on conceptual understanding: the case of density and floating–sinking phenomena 2 Perceptual cues are important to aid understanding 3 Investigating what problems adolescents in year-nine compulsory school face when trying to learn to play a song together, how they take on these, and how their teacher responds to these problems 4 The effectiveness of volition support (VoS) in promoting students' effort regulation and performance in an online mathematics course
Issue 5	**Issue 6**		
1 Examining how differing instructional scaffolding influenced the actual use of evaluation skills to improve argumentation quality during college science inquiry **2 Demonstrating that intensity of science interest is separable from topic breadth and showing that these two**	1 Assess the possibilities and limitations of peer instruction in teaching technical creativity to different-level students through empirical teachings in authentic high school classrooms 2 A case study of the continuing training of mariners as evidence to show how this framework is developed to identify and		

dimensions contribute differently to learning-relevant behavioral tendencies	eventually improve learning in formal adult and vocational education
3 A corpus-based analysis of 1043 social media items to determine the patterns of the students' vocabulary usage	3 Comparing the effectiveness of tests and summary writing tasks in enhancing the long-term retention of students with different levels of test anxiety
4 Developing argumentation skills in mathematics through computer-supported collaborative learning: the role of transactivity	4 Investigating the design and effectiveness of a video tutorial for software training
	5 Examining the effects of this intervention by comparing it with regular brainstorming instruction.

Summary of one article

Citation: Hans van der Meij, & Jan van der Meij. (2016). Demonstration-based training (DBT) in the design of a video tutorial for software training. *Instructional Science, 44*(6), 527-542. doi:10.1007/s11251-016-9394-9

This study investigates the design and effectiveness of a video tutorial for software training. In accordance with demonstration-based training, the tutorial consisted of a series of task demonstrations, with instructional features added to enhance learning. It best represents the key trend because of the articles published this year, 12 out of 29 (41%) were about the investigation. It also demonstrate the feature of the instrument design--- experimental design and interview.

Instructional Science-Year 2017(38 papers)

Issue 1	Issue 2	Issue 3	Issue 4
1 Causal relationships that behave or appear to behave probabilistically **2 The impact of the PBL teaching method** **3 Examining how students' progression through the questions tended to become more sophisticated as we increased support** **4 A classroom intervention that used a conceptual representation to support reasoning about ecosystems** **5 Different approaches to learning about systems and how to support and measure such learning** **6 Represent a diversity of methods for measuring learners' systems understanding** **7 Building effective professional development**	1 Stereotype threat and gender differences in chemistry 2 A case study of learning opportunities and tensions in an informal science learning environment 3 To test processes underlying this assumed multimedia effect we collected performance scores, eye movements, and think-aloud protocols from students solving problems in vector calculus with and without graphs 4 Exploring an intervention for promoting the utilization of a set of research-based design principles in educational practice 5 Instruction-first and problem-solving-first approaches: alternative pathways to learning complex tasks 6 Strategies to reduce the negative effects of spoken explanatory text on integrated tasks 7 Comparing the effects of mathematics practice with and without correct-answer feedback on immediate and 1-week delayed performance in a classroom setting 8 The effects of different levels of disfluency on learning outcomes and cognitive load	1 sense-making competencies enhance perceptual fluency 2 Effects of order and vocational domain 3 Preservice teachers' use of contrasting cases in mathematics instruction 4 Interrogating this assumption students have the necessary prerequisite knowledge resources to generate and explore solutions to problems before learning the targeted concept	1 Effects of student-facilitated learning on instructional facilitators 2 Prior knowledge moderated the effect of the script guidance level on deep text comprehension 3 Effects of discussion representation: comparisons between social and cognitive diagrams 4 Comparing different measures of cognitive load research, the present study uses three different objective methods and one subjective method, reviewing the seductive details effect in a computer-based multimedia learning instruction 5 The effects of teacher-introduced multimodal representations and discourse on students' task engagement and scientific language during cooperative, inquiry-based science 6 Peer feedback mediates the impact of self-regulation procedures on strategy use and reading comprehension in reciprocal teaching groups
Issue 5	**Issue 6**		
1 Effects of a rubric for mathematical reasoning on teaching and learning in primary school **2 Effects of detailed illustrations on science learning: an eye-tracking study** **3 Assess the connection between students' perceived**	1Investigating PMM as a method for exploring specific knowledge dimensions in formal science education integrating teaching outside the classroom 2 Methods of interaction analysis on a small number of cases to qualitatively document how tutor–student dyads co-construct stories about failure		

constructivist learning environment and their involvement in activities unrelated to class work via social media engagement (SME) **4 The impact of three criteria for examining the productivity of the interaction** **5 Examining the nature of student writing goals and the relationship of these writing goals to revision alone and in combination with two other important sources of students' self-regulated revision—peer comments on their writing, and reflections for their own writing obtained from reviewing others' writing** **6 The effects of computer programming on high school students' reasoning skills and mathematical self-efficacy and problem solving** **7 Experimental evidence for diagramming benefits in science writing**	3 How design guides learning from matrix diagrams 4 The effect of providing instructional facilitation on student college readiness 5 Examining the role of personal interest, students' perceptions of meaningfulness (MNG) and the instructional utility of an innovative hands-on learning module in the development of triggered and maintained situational interests in an engineering classroom that used handson learning modules. 6 Learning dynamics in doctoral supervision by analysing how learning opportunities are created in the interaction between supervisors and PhD students, using the notion of experiencing variation as a key to learning.

Summary of one article

Citation: Bonner, S. M., & Thomas, A. S. (2017). The effect of providing instructional facilitation on student college readiness. Instructional Science, 45(6), 769-787. doi:10.1007/s11251-017-9426-0

This study investigated the impacts of a peer-facilitated instructional intervention in mathematics on progress towards readiness for college among 10th graders who facilitated instruction for 9th graders in algebra classrooms in urban secondary schools. A goal of the intervention is to promote readiness for college by placing middle-performing students in the role of instructional facilitators. It best represents the key trend because 23 out of 38(61%) articles investigate the impact of instruction, intervention, or other strategies.

Instructional Science-Year 2018(41 papers)

Issue 1: Discovery learning	Issue 2	Issue 3	Issue 4 : Community
1 Discovery learning 2 Broadening the horizons of research on discovery-based learning 3Reinventing discovery learning: a field-wide research program 4 Instruction, repetition, discovery: restoring the historical educational role of practice 5Designing for discovery learning of complexity principles of congestion by driving together in the TrafficJams simulation 6 Understanding the impact of guiding inquiry: the relationship between directive support, student attributes, and transfer of knowledge, attitudes, and behaviours in inquiry learning 7 Examining the preparatory effects of problem generation and solution generation on learning from instruction 8 Searching for buried treasure: uncovering discovery in discovery-based learning 9 Epistemic gameplay and discovery in computational model-based inquiry activities	1 the role played by digital technologies in creating a space for SV in academia 2 replicate prior findings and to investigate whether transfer of task-selection skills would be facilitated even more by a more general, heuristic task-selection training than the task-specific algorithm. 3 Worked examples with errors: when self-explanation prompts hinder learning of teachers diagnostic competences on problem-based learning 4 Making connections among multiple visual representations 5 Students' everyday knowledge and experiences as resources in educational dialogues 6 Exploring the effects of concreteness fading across grades in elementary school science education	1 Self-regulation of secondary school students: self-assessments are inaccurate and insufficiently used for learning-task selection 2 Scanpath analysis of expertise and culture in teacher gaze in real-world classrooms 3 A qualitative case study of SLLC student leaders' attempts to teach a project management practice (StandUp) to student innovation teams 4 Examining the effects of feedback that corrects and contrasts a student's own erroneous solutions with the canonical, correct one (CEC&C feedback) on learning in a conceptual change task 5 Effects of immersion in inquiry-based learning on student teachers' educational beliefs 6 Two-year qualitative study explored the learning process alongside students' perceived outcomes within an interdisciplinary project-based learning (PjBL) task	1 a systematic research program to analyzes how four recent approaches to learning communities address scaffolding and identifies three different stances 2 a wider history of research and practice on learning communities as we revisit this highly generative and central topic in the learning sciences 3 Contemporary trends to problematize this assumption and motivate a discussion for the productivity of dissent 4 The feld's interest of creating and sustaining communities, using the three themes identifed from the four articles of this special issue. 5Supporting communities of learners in the elementary classroom: the common knowledge learning environment 6 Supporting communities of learners in the elementary classroom: the common knowledge learning environment 7 Co-development patterns of knowledge, experience, and self in humanistic knowledge building communities 8 A learning community that requires acting together in order to perform and to learn, an organization of shared activity across people and through time that we call ensemble learning
Issue 5	**Issue 6**		
1 Threads of local continuity between centralized and decentralized causality: Transitional explanations for the behavior of a complex system 2 Debugging during block-based	1 The role of experimental technologies in labs as tools for learning is examined here through a case study 2 Examining the effects of including interactive graphic		

programming 3 Examining students' comprehension and metacomprehension accuracy (prediction accuracy and postdiction accuracy) of a statistics text as a function of their statistical misconceptions 4 Using an instructional design technique that had previously improved learners' problem solving performance in programming: subgoal labeled expository text and subgoal labeled worked examples 5 Identifying and understand the mental models 6 Preservice elementary science teachers' argumentation competence: impact of a training programme	organizers into a whole class PowerPoint lesson as an instructional approach intended to improve student engagement and generative learning in schools. 3 Investigating students' modeling progress and strategies in a problem-solving simulation game through content analysis, and through supervised and unsupervised lag sequential analysis (LSA) 4 Effects of two differently sequenced classroom scripts on common ground in collaborative inquiry learning 5 Laptop versus longhand note taking: effects on lecture notes and achievement 6 Reducing cognitive load by demonstrating and practicing strategies combined with an explicit identification of criteria for strategy efficiency by contrasting problem solutions 7 Practice makes proficient: teaching undergraduate students to understand published research

Summary of one article

Citation: Trninic, D., Swanson, H., & Kapur, M. (2018). Productive dissent in learning communities. *Instructional Science, 46*(4), 621-625. doi:10.1007/s11251-018-9466-0

This study draws on contemporary trends to problematize this assumption and motivate a discussion for the productivity of dissent. It best represents the key trend because 12 out of 41(29%) papers are about practices in 2018. This article is one of the special feature in Issue 4. It also summarizes the four papers in this Special Issue offer examples of communities that, to varying degrees, encourage members to be active participants in creating and evaluating communal constructs along three dimensions: knowledge, practices, and identities.

Instructional Science-Year 2019(29 papers)

Issue 1	Issue 2	Issue 3	Issue 4
1 The value of fixed versus faded self-regulatory scaffolds on fourth graders' mathematical problem solving **2 Fading distributed scaffolds: the importance of complementarity between teacher and material scaffolds** **3Using TIMSS items to evaluate the effectiveness of different instructional practices** **4 Investigating the effects of writing tasks and prompts on knowledge integration across domains** **5 Investigating whether learning by writing explanations can be enhanced when students additionally receive computer-based feedback on the cohesion of their explanations**	1Emotion regulation tendencies, achievement emotions, and physiological arousal in a medical diagnostic reasoning simulation 2 Fostering creative performance in art and design education via self-regulated learning 3 Bolstering students' written argumentation by refining an effective discourse intervention: negotiating the fine line between flexibility and fidelity 4 A specific benefit of retrieval-based concept mapping to enhance learning from texts 5 A pre-post-test design with a follow-up 4 weeks later to investigate whether a computerised training in identifying structural components of informal arguments can improve university students' competences to understand complex arguments.	1 How the problem-solving process in successful tutoring situations differs from that in unsuccessful tutoring situations with regard to cognition, motivation and increasing task complexity 2 Effects of problem–example and example–problem pairs on gifted and nongifted primary school students' learning 3 Investigating the impact of spacing on L2 incidental vocabulary learning. 4 Immediate and delayed effects of a modeling example on the application of principles of good feedback practice: a quasi-experimental study 5 Two experiments investigated the extent to which the concreteness of titles affects metacognitive text expectations, study motivation, and comprehension test performance.	1 Investigating cognitive style (the visualizer–verbalizer dimension) and cognitive ability (spatial and verbal abilities) in terms of corresponding resource use behavior. The study further examined the potential link 2 Examining Chinese kindergarten children's psychological needs satisfaction in problem solving: A self-determination theory perspective 3 Examining the effects of service-learning on student outcomes 4 The effects of totally or partially self-generating a graphic organizer on students' learning performances 5 Developing a smart K-12 classroom infrastructure to support real-time student collaboration and inquiry: a 4-year design study
Issue 5	**Issue 6**	**Issue 3**	**Issue 4**
1 Effects of group experience and information distribution on collaborative learning **2 Investigating the effects of creative-map instructional strategies on learning performance, learning motivation, and creativity in a junior high school geography class** **3 Two empirical studies investigate how content-focused learning goals and contrasting cases affect how students learn and transfer science concepts from engineering activities** **4 Testing Computer-enabled**	1 The moderating role of additional information when learning with animations compared to static pictures 2 Investigating whether prior instruction emphasizing the importance of knowledge integration (relevance instruction) supports preservice teachers in using both knowledge types simultaneously 3 The effect of short online pedagogical training on university teachers' interpretations of teaching–learning situations 4 Studying the expertise reversal of the multimedia signaling		

visual creativity: an empirically-based model with implications for learning and instruction **5 The effect of language modification of mathematics story problems on problem-solving in online homework**	effect at a process level: evidence from eye tracking.		

Summary of one article

Citation: Gidalevich, S., Gidalevich, S., Kramarski, B., & Kramarski, B. (2019). The value of fixed versus faded self-regulatory scaffolds on fourth graders' mathematical problem solving. *Instructional Science, 47*(1), 39-68. doi:10.1007/s11251-018-9475-z

This article explores a unique approach for fading is suggested that offers a graduated reduction model of scaffolding prompts according to the Self-regulated learning (SRL) phases involved in the solution, which allows assimilation of processes to prepare learners for autonomous activity. This quasi-experimental study of fourth-graders (n = 134) examines the effectiveness of metacognitive self-question prompts in a Fixed (continuous) versus Faded (graduated reduction) scaffolds model during planning, monitoring and reflection phases, on the facilitation of students' SRL (metacognition, calibration of confidence judgment, motivation), and sense making of mathematical problem solving at the end of the program (short-term effect) and 3 months later (long-term/lasting effect). Findings indicated that the Faded Group performed best in the metacognition knowledge aspect, motivation in the performance goal approach increased and, in the avoidance, goal decreased. No differences were found between the groups on the regulation aspect and calibration of confidence judgment in the solution success. Additionally, the Faded Group outperformed the Fixed Group on sense making of problem solving. These findings were manifested particularly in the long-term effect. The study supports theoretical claims relating the role of fading scaffolds to increase students' autonomous SRL (metacognition, motivation) and improvements in sense making, particularly on the long-term retention effect.

It best represents the key trend due to the following reasons: first, most of the articles in 2019 are about the investigations on the effectiveness of new programs or interventions. Second, the quasi-experimental design dominated in all design instruments.

Historical Summary of Journal trends

Over the last 5 years there were 30 issues published with a total of 172 articles. Of those articles I can get access to, 8% were focused on “practices”; 92 % were focused in “research”. A majority of the published articles in the journal were focused on investigating the effectiveness of the new models, some programs, standards, assessment tools, methods, and strategies. Some of the articles are reviews. In the earlier years articles focus on the effectiveness of new interventions, relationship and the experiments between theories or new theories. It’s narrow. New terminologies are burgeoning, in latest issues, we have seen emotion regulation tendencies, achievement emotions, and physiological arousal. The independent variables are more complex, normally they consist of three terminologies or more. The angle that the researchers chose for conducting the research is new and specific, which makes this journal quite different from other journals based on the specific unique dependent variables and interpretations of the studies. It’s hard for me to find a theme for one issue, except 2 issues, they have obvious characteristics. 5 articles are about self-regulated learning, but the research was conducted from a very specific angle. I will do a deep review afterwards.

Performance Improvement Quarterly-Year 2015(15 articles)

Notes: In the following charts, texts highlighted in yellow are practices; texts highlighted in fuchsia are empirical studies on the impact or the effectiveness of interventions; the fonts in red are the papers related to my research interest.

Issue 1: Survey Design on perceptions	Issue 2: Performance-related projects	Issue 3: ID related topics	Issue 4: Intervention
• Investigating learning that occurred during the integration phase as perceived by learning and development (L&D) professionals • Perceptions of workplaces in South Korea • A needs assessment conducted to identify health needs for an underserved, vulnerable population • Exploring some of the most prevalent methods for conducting Levels 4 and 5 of technical training evaluation among large organizations with a preponderance of technical talent	• A historical overview of industrial-organizational (I-O) psychology and its relationship to the field of performance improvement (PI) • Examining what sources of evidence are used in intervention selection and what changes in belief occur when performance improvement professionals make these decisions • Employ structured methods to reduce biases while simultaneously improve evaluation outcomes and engagement • Exploring the systematic individual and group-oriented outcomes achieved in group cohesion, group member trust, and group-efficacy • Exploring factors that exist in the client-consultant relationship and their impact on relationship commitment	• A case study on instructional design (ID) students' design judgements • Instructional design (ID) practice via an exploratory study in which pairs of researchers observed design judgments • Investigating Knowledge and skills needed by instructional designers in higher education • Investigation on employee perceptions of managerial practices and conditions to enhance employee growth and development	• Impacts of learning interventions on organizational human capital and performance • Perceptions of use of the EPSS • T^sup 4^ MAP(TM) as a scholar-practitioner model for performance improvement • Investigating some of the foundational evaluation-related concepts and procedures for conducting program evaluations

Summary of one article

Citation: Williams, R. C., & Nafukho, F. M., PhD. (2015). Technical training evaluation revisited: An exploratory, mixed-methods study. *Performance Improvement Quarterly, 28*(1), 69. Retrieved from https://search.proquest.com/docview/1681504127?accountid=14214

This article explores some of the most prevalent methods for conducting Levels 4 and 5 of technical training evaluation among large organizations with a preponderance of technical talent. I consider it best represents the key trend in this year due to the following reasons: first, training is quite prevalent among organizations, government, military, business and institutions. Therefore, it is essential for researchers to use the most important interventions to help improve organizational performance, to impart new knowledge to trainers, and to enable trainers to further enhance and continuously update their knowledge, skills, and behaviors in the workplace. Second, training comprises different types, such as technical training and interpersonal training. The examples mentioned in the article include learning functional skills such as engineering, scientific skills, and/or research and development skills have provided a broad scope for conducting research next. Last but not least, the prevailing models summarized in the article for training

evaluation will elicit researchers to conduct more research based on expansive findings.

Performance Improvement Quarterly-Year 2016(18 articles)

Issue 1: Investigation on the problems in performances	Issue 2: New models or structures	Issue 3: Comparison of models or performances	Issue 4: Case studies on whole programs
• The degree to which practitioners within the human performance technology practice the competency standards • A meta-analysis that examined where performance problems actually occur in organizations • This case study of integrating evaluation and needs assessment in an ergonomics program • Examining the impact of a leadership training program on participants' emotional intelligence scores	• Investigation on structuring job interviews • An assessment of pronouns as linguistic cues for predicting Work attitudes • The new model cognition conflict introduced • The Delphi technique utilized to identify a core set of guiding principles used by designers in their practice	• A case study about the individuals' relationship of transfer to accomplishment in their fields • A transfer research in a new direction by examining the use of Web 2.0 technologies for supporting learning transfer resulting from formal training • Investigation of how three small design teams created and used drawings (inscriptions, in this study) in support of their face-to-face design activities • Comparison between 2 programs on the acquisition of automotive product knowledge in a lab setting • Investigating ways in which performance management is practiced in medium-sized enterprises in Sri Lanka	• A case study to look into the process of a needs assessment • A case study for a strategic plan for a Processed Foods Company • Identifying the instructional principles that are effective in accelerating the performance of journeymen • Case studies about confirming a valid and reliable measure of perceived strategic alignment in LTD functions • Investigating effects of reporting levels on team workers in new business sectors

Summary of one article

Citation: Turner, J. R. (2016). Team cognition conflict: A conceptual review identifying cognition conflict as a new team conflict construct: TEAM COGNITION CONFLICT. *Performance Improvement Quarterly, 29*(2), 145-167. doi:10.1002/piq.21219

This article introduces a new conceptual model that adds to the previous intragroup conflict model by introducing a new construct—cognition conflict. I consider it best represents the key trend in this year due to the following reasons: first, people need new models to complement the existing models so that the stakeholders may feel the investment worth it. Second, it will advance the literature and enable scholars and scholar-practitioners to better identify the causes of gaps in the performances and to predict overall human performances more accurately. Lastly, based on the new models, we can do comparisons between the old models and new models or case studies by applying the new models in reality to flourish in the development of science.

Performance Improvement Quarterly-Year 2017(18 articles)

Issue 1: Survey design on the effectiveness of new models	Issue 2: Human performances in Israeli	Issue 3: Relationships about 2 variables	Issue 4: Survey designs on the effectiveness
● Examining how a new model of open-plan office work environment perceptions on the individual level affect creative outcome. ● Investigating how a new model affect creative outcome through environmental satisfaction and social interaction ● Part two of a two-part investigation, employs confirmatory factor analytic methods to validate the factor structure of the six models defined in the Innovation Quotient instrument ● Survey designs on customer relationship management (CRM) and organizational excellence (OE)	● Examining the mobile learning and performance support initiative that was taken on by the Israeli Air Force ● An Investigation into the Effect of Job Aid Design on Customer Troubleshooting Performance ● Describing the first mobile learning and performance support initiative taken by the Israeli Air Force ● Examining the relationship between transformational leadership and organizational commitment at the team level in a Korean conglomerate	● Examining the relationship between an employee's health and employee engagement ● Proving hypotheses that engaged employees would report elevated levels of health, including more positive levels of physical and mental health, sleep, exercise, and eating behaviors ● Examining how a policy-capturing approach interact in relation to stated motives after feedback ● Identifying the tacit beliefs that affect all the judgments made during the design process ● Describing the first mobile learning and performance support initiative taken by the Israeli Air Force.	● Investigation on the influence of interest on job completion time, ordinary and worthy job performance, and job satisfaction ● Exploring the benefits of different reward "currencies" including cash, points, gift card, or direct product or travel rewards ● Investigating the role of two specific forms of job-based resource, colleague support and role clarity, in enhancing work engagement ● Investigating the effects of work engagement on the relationships among job resources and job performance and turnover intention in Korean organizations ● Part one of a two-part investigation, employs confirmatory factor analytic methods to validate the factor structure of the six models defined in the Innovation Quotient instrument

Summary of one article

Citation: Kim, W., PhD. (2017). Examining mediation effects of work engagement among job resources, job performance, and turnover intention. *Performance Improvement Quarterly, 29*(4), 407. Retrieved from https://search.proquest.com/docview/1860821327?accountid=14214

This article was to investigate the effects of work engagement on the relationships among job resources and job performance and turnover intention in Korean organizations. It best represents the key trend due to the following reasons: 12 of the papers published in these issues were related to the investigations of effectiveness. Also, This helps resolve the underlying issues and find the evidence of wrongdoing.

Performance Improvement Quarterly-Year 2018(15 articles)

Issue 1	Issue 2	Issue 3	Issue 4
• Examining a content analysis in order to determine factors that characterize a great place to work for employees. • Survey design to identify through content analysis of interviews with employees from different industries and job levels • A literature review provides new insight into the relationship between alexithymia and leadership effectiveness • Examining individuals' motivations to pursue professional certification • Assessing the validity and applicability of the Workplace Adaptation Questionnaire (WAQ) in the Korean context	• Developing an effective model for communities of practice (CoPs) in higher education • Testing a theoretical model that certain practitioner and organizational characteristics (e.g., age, education, training and task experiences, and organizational climate) facilitate general self-efficacy (GSE) and task-specific self-efficacy (TSSE) • Conducting a needs assessment of community policing services to an African American community • Content analysis of 31 published definitions using the criteria of comprehensiveness, nontautologicality, insider acceptance, and appeal to outsiders	• Identifying the competencies for designers from the employers' point of view • Investigating the effectiveness of a gamification strategy to increase employee motivation and provide a more thorough onboarding experience • Investigating an initial measure of employees' perceptions of strategic human resource development (SHRD) alignment • The effect of leadership on shared mental-model emergence was investigated	• An overview of studies related to job performance, presenting the results of a bibliometric review of empirical studies appearing in the principal journals of management and psychology in the period 2006-2015 • Investigating the structural relationships among learning-organization culture, self-efficacy, work engagement, and job performance in Korean workforce institutions

Summary of one article

Citation: Song, J. H., Chai, D. S., Kim, J., & Bae, S. H. (2018). Job performance in the learning organization: The mediating impacts of self-efficacy and work engagement: JOB PERFORMANCE IN THE LEARNING ORGANIZATION. *Performance Improvement Quarterly, 30*(4), 249-271. doi:10.1002/piq.21251

This article examines the structural relationships among learning-organization culture, self-efficacy, work engagement, and job performance in Korean workforce institutions. The authors also investigated the mediating roles of teachers' self-efficacy and work engagement on the relationship between the learning-organization culture and teachers' job performance. It best represents the key trend in this year because this year's journal followed last year's trend in focusing on the effectiveness of some models, strategies or interventions.

Performance Improvement Quarterly-Year 2019(16 articles)

Issue 1	Issue 2	Issue 3	Issue 4
• **An integrative literature review of the information-systems literature to develop an analytics system model and hierarchy of outputs.** • **Examining whether and how formal mentoring programs could impact psychological capital and employee engagement, two key business drivers that can directly affect an organization's bottom line** • **Cognitive task analysis (CTA) methods used to examine the concept of cognitive readiness in the context of violent police–citizen encounters.** • **developing and testing a multilevel model in which employee effort mediates the impact of HPWS on supervisory ratings of employee proficiency, adaptivity, and proactivity**	• Discussion on generational attitudes towards learning and technology • Examining how organizational-learning culture, cultural intelligence (CQ), and transformational leadership influence job performance • Examining the effects of a psychosocially safe environment and two types of shared leadership on project team creativity • Investigating the dynamics of transfer by applying a taxonomy that identified five distinct types of use	• Examining the mediating effects of loyalty and employee self-determination (ESD) on organizational-based self-esteem (OBSE) and employee impact • A retrospective design employed to examine the factors affecting transfer generalization and maintenance of managerial-leadership skills from a 12-month training program. • Investigating the effects of brief mindfulness-meditation exposure on interviewee performance in responding to interview questions in an employment interview. • The case study to understand the relationship between strategic planning and the theory of economic complexity	• Exploring the relevance of Thomas Gilbert's Behavior Engineering Model (BEM) in an emerging market environment • Investigate four workforce flexibility strategies used in export-based firms • An overview of the tool the Organizational Performance Index's development and reliability along with validity-testing results. • A literature review to develop a proposed conceptual model for investigating factors associated with human resource development and persons with disabilities in the workplace.

Summary of one article

Citation: Wickramasinghe, V., Wickramasinghe, G., De Silva, C., Chandrasekara, R., & Jayabandu, S. (2019). Practice of workforce Flexibility—Internal, external, numerical and functional flexibility. *Performance Improvement Quarterly, 31*(4), 355. doi:http://dx.doi.org/10.1002/piq.21270

The purpose of the study is to investigate four workforce flexibility strategies used in export-based firms. These four strategies are external flexibility, internal flexibility, functional flexibility and numerical flexibility. It best represents the key trend in this year because this year's journal contained 9 articles, which all focus on the influence of some programs, strategies, or methods.

Historical Summary of Journal trends

Over the last 5 years there were 20 issues published with a total of 82 articles. Of those articles I can get access to, 8% were focused on “practices”; 92 % were focused in “research”. A few papers only have the title and authors. I can’t get enough information, so I didn’t include them in my report. A majority of the published articles in the journal were focused on investigating the effectiveness of the new models, some programs, standards, assessment tools, methods, and strategies. Some of the articles are focused on perceptions and the cause and effect relationships. In the earlier years articles focus on perceptions, relationship and the experiments between theories or new theories. It’s narrow. However, the environment is very broad, all the articles over the 5 years are not limited to education. The topic cover organizations, medical services, workplace, air force, conglomerate, African community, marketplace and so forth. 1/3 of the topics are related to instructional designers. Most of the researchers are international Ph.D. students. Some researchers write 2-3 articles in one year in different issues. As for the new issues, 63% of the articles are about investigating the effects or impact of some programs, strategies, environment, practices, factors, performances or methods.

Quarterly Review of Distance Education-Year 2015(27 papers, excluding book review and conference calendar)

Notes: In the following charts, texts highlighted in yellow are practices; texts highlighted in fuchsia are empirical studies on the impact or the effectiveness of interventions; the fonts in red are the papers related to my research interest.

Issue 1	Issue 2: Transience	Issue 3	Issue 4
1 A case study on the initial implementation of the WebIT MS in Instructional Technology program at the University of Tennessee during 2008-2010 2 A comparative analysis of distance education quality assurance standards 3 The effects of opinion leaders' influence on administrators provided a focus into this process 4 A case study examined faculty perceived usefulness of Voice Thread, a cloud-based multimedia application that expedites content development, commenting and sharing	1 Define the concept of technology transience, contextualize the concept over the historical time frame, and present schemas for the measurement of technology transience 2 Discussing how distance universities face the challenges of the ever-shortening lifespans of these new technologies 3 Examining critical issues and essential attributes in the context of technology transience that decision makers must continuously address and practice if they are to provide meaningful and transformative change in the next era of online education 4 Discussing online privacy concerns and emergent solutions in online learning contexts where technology transience is present 5 Exploring transience and intransigence as related to assistive technology itself, to technology implementation in the public school classroom, and to postsecondary distance education 6 The uses (and misuses) of collaborative distance education technologies: implications for the debate on transience in technology 7 Presenting frameworks used to assist in the development of effective technology-based instruction, including instruction developed in a highly technologically transient setting 8 A group of web technologies, with various degrees of integration and interaction, that helps users and learners manage the flow of information that relates to the learning process, the creation of knowledge, and the development of skills 9 Decisions about technology choices and suggests that many are driven by markets and perceptions, and not the problems that the technology might solve 10 Technology transience: opportunities, challenges, and implications	1 Using a critical theory lens to understand how online education administrative leaders in higher education institutions negotiate the various political challenges to promote effective practice 2 Note-taking habits of online students: value, quality, and support 3 A Delphi study was conducted using a 30-member panel comprised of experts across 20 states. The purpose was to determine the competencies needed to develop instructional strategies for mobile learning 4 Cultural impacts on distance learning, online learning styles, and design 5 Exploring what instructors can do to improve student depth of thinking in online discussion boards (DBs)	1 Assessing faculty experiences with and perceptions of an internal quality assurance process for undergraduate distributed learning courses: a pilot study 2 Examining the intersubjectivity of peer responses of 2 semesters of a practical online educational technology course and 1 semester of a theoretical worldview course using content analysis 3 Examining current assessment practices of online collaborative learning, and (2) presenting a model of interconnected components: assessment design, assessment transactions, and assessment for knowledge construction 4 A case study of how systems thinking and the instructional systems design ADDIE (analysis, design, development, implementation, and assessment) model were used to design and develop one of the first MOOCs at a mid-sized university in the southeastern United States 5 Describing course content in the module, interactive strategies, and student comments on experience 6 Describing the results of a mixed-methods study that identified students' perceptions of the communication processes utilized in the presentation, delivery, and return of online evaluations of teacher performance 7 A Mann-Whitney U test was used to measure variability and compare the mean scores for a series of psychosocial learning environment scales between online and face-to-face environments to determine if differences exist 8 Examining a model comparing outcomes in 3 different pedagogical classroom settings: traditional, distance education using an e-learning tool, and hybrid setting

Summary of one article

Citation: Muilenburg, L. Y., & Berge, Z. L. (2015). Revisiting teacher preparation: Responding to

technology transience in the educational setting. *Quarterly Review of Distance Education, 16*(2), 93.
This article presents frameworks used to assist in the development of effective technology-based instruction, including instruction developed in a highly technologically transient setting. The article then explores strategies teacher educators may use to help shift the mindset, resources, and approaches surrounding technology-based instruction to better help preservice teachers effectively manage and integrate technology into their teaching.
It best represents the trend because Issue 2 has an obvious theme of transience related to technology-based instruction. The article summarizes two models to help educators to prepare for the professional technology programs.

Quarterly Review of Distance Education-Year 2016(22 papers, excluding book review and calendar)

Issue 1	Issue 2	**Issue 3: Learning analytics**	**Issue 4: Big data and analytics**
1 Examining the usability needs of a social constructivist online course 2 A case study investigated the process 119 faculty members underwent as they transitioned from using Desire to Learn (D2L) learning management system (LMS), to using Canvas LMS 3 Synchronous and asynchronous communication in distance learning: a review of the literature 4 A survey design deployed to online teaching instructors to better understand faculty perceptions of group work 5 An exploration into the effects of opinion leaders' influence on administrators provided a focus into this process 6 A survey design to compare and assess students' experiences and perceptions in a blended and a traditional course, as well as their level of learning motivation, level of learning outcomes and skills, and learning achievement	1 Faculty perceptions of features in a newly adopted LMS 2 Exploring how English language learners perceive cross-cultural interaction within planned, virtual exchange sessions 3 Examining the relationships of online students' perceptions of learner-centered approach, motivated strategies for learning, and critical thinking skills 4 Establishing a method for creating more equivalent learning outcomes in a leadership course taught in resident and distance education formats 5 Presenting frameworks used to assist in the development of effective technology-based instruction, including instruction developed in a highly technologically transient setting	1 The very use of learning analytics shapes education in at least 4 ways: epistemologically, ontologically, systemically and politically 2 Examining the use of preferred feedback modes in students by using a dispositional learning-analytics framework, combining learning-disposition data with data extracted from digital systems 3 Examining research methods for analyzing social construction of knowledge in online discussion forums 4 Examining the usage of a Bayesian network to evaluate the teaching performance of university teaching assistants in an e-learning (or e-training) session 5 Describing the design and enactment of pedagogy-specific learning analytics, which presents a visual dashboard to facilitate problem-based learning instructors in their understanding of student learning activity 6 Exploring what instructors can do to improve student depth of thinking in online discussion boards (DBs)	1 Addressing the ownership and use of these data points, taking into consideration both privacy and intellectual property rights as well as ethical issues 2 Electronic data and the e-learner: critical issues in organizational workplaces, professional development, community colleges, and teacher preparation settings 3 Exploring the practicality of the use of such big data sets arising from within course wikis from an instructional standpoint, and explores the data that practitioners may wish to capitalize upon 4 By enhancing a suite of integrated supports for students and faculty, retention rates in online courses can be improved 5 Examining the type and nature of data that is now frequently collected within online professional development settings

Summary of one article

Citation: Aldosemani, T., Raddaoui, A., Shepherd, C., & Thompson, J. (2016). Second life as a third place for English language learners' cross-cultural interaction. Quarterly Review of Distance Education, 17(2), 29.

This study explores how English language learners perceive cross-cultural interaction within planned, virtual exchange sessions. This attempt is new and it represents the other papers in 2016 to utilize new technologies or other formats of innovation. Learners are turning to three-dimensional virtual environments like Second Life. In addition to text and voice communication, virtual environments provide rich, immersive, visual experiences. They foster communication, reduce symbol systems required to discuss cultural objects, and enhance language learning.

It best represents the trend because it demonstrated interactive opportunities for students, the researchers developed a space in Second Life for native English speakers and Saudi students to congregate, interact, and share cultural experiences. It’s a meaningful way to utilize three-dimensional virtual environments like Second Life.

Quarterly Review of Distance Education-Year 2017(23 papers, excluding book review and calendar)

Issue 1	Issue 2	Issue 3	Issue 4
1 Use of blackboard collaborate for creation of a video course library 2 Students' perceptions of online courses: the effect of online course experience 3 The trend concerning interaction in distance education between the years 2011 and 2015 4 A mixed-method national survey of programs in the United States was conducted to develop a picture of the ways higher education and student affairs graduate preparation programs currently prepare future professionals to address the needs of online learners 5 A content analysis measured the intersubjectivity of peer responses by analyzing the interaction analysis model (IAM) phase of each post and comparing with the IAM phase of the previous post 6 Describing the process of developing a flipped classroom approach for an undergraduate evidence-based nursing practice course and discuss lessons learned from the process and the evaluation data 7 Developing and implementing an interactive end-of-life education module using raptivity and ispring: lessons learned	1 A brief history of use of simulation in Nursing Education 2 Review of 12 online learning standard documents and examine the standards included in each of these documents 3 Identifying and analyzing common design and pedagogical issues instructors encountered while working with a teaching and learning coordinator who provided training and feedback 4A survey design that modest directs relationships between homework and grades and retention 5 Evaluating the impact of a statewide Virtual Advanced Placement (VAP) program on access to AP courses for students from underrepresented populations 6 A qualitative study reviewing webcam conference technology adoption	1A mixed methods study was to determine what characteristics of affinity spaces are found in distance higher education 2 A study on establishing the presence of both formal and informal learning activities in a network-based hybrid approach to MOOC design 3 The effect of modality change on course evaluations in a stastics course 4 Investigating 10 public elementary schools that employed district technology coordinators to facilitate the implementation of classroom technologies 5 A qualitative study conducted to understand influences that affected students adoption of an online academic support program delivered through videoconferencing	1 Examining the relationship between virtual school size and student achievement 2 Examining the quality of team work using the Bonner Model of Task Complexity 3 Student perceptions of factors influencing success in hybrid and traditional DPT programs: A Q-sort analysis 4 Describing the redesign of a traditional PT lab course using the community of inquiry (CoI) model as a framework and Google Blogger as the main platform for an online skills lab 5 A survey design to examine the general perceptions of Saudi Arabian faculty members and Saudi female students toward e-learning, as well as their perceptions toward potentially replacing the current closed-circuit distance technology in use for female students studying at Princess Nourah Bint Abdulrahman University (PNU) in Riyadh, Saudi Arabia, with an online, learning management system-based technology

Summary of one article

Citation: Dobbs, R. R., Carmen, A. d., & Waid-Lindberg, C. A. (2017). Students' perceptions of online courses: The effect of online course experience. *Quarterly Review of Distance Education, 18*(1), 93.
This study explores The study attempts to address this shortcoming by exploring the students' perception of online courses while comparing perceptions of those who have taken online courses and those who have not. The researchers used different dependable variables to see the significant differences between the students who enrolled in face-to-face classes and online classes. The results are positive. It best represents the trend because several articles published in 2017 were about the perceptions and this article covers different comparisons between the dependable variables and independable variables.

Quarterly Review of Distance Education-Year 2018(13 papers, excluding book review and calendar)

Issue 1	Issue 2	Issue 3	Issue 4
1 Examining student-to-student interactions in an asynchronous online undergraduate course in higher education using regression analysis 2 Evaluation of the design and development of a MOOC for graduate supervisors 3 A descriptive qualitative study to describe the process of model creation for both models and to systematically validate the two models using a survey and the nominal group technique (NGT) with expert instructional designers. 4 Exploring the use of 3 testing tools to determine whether there are differences in test scores and student grades in the distinct testing environments	1 A systematic review provides a summary of studies on teaching, social, and cognitive presences in the community of inquiry (CoI) model using the CoI instrument in a higher education setting since its development in 2008 by Arbaugh et al. 2 The interventions to address the above weaknesses of worked examples by including in the instructional process a strategy that merges worked examples, homework-like tasks, and active learning classroom environment 3 Using the National Survey of Student Engagement to analyze levels of engagement of distance learners 4 Investigating the process during a semester-long online course development training	1 Describing an analysis of utilization patterns of resources and site features in 1 online professional development platform for K-12 teachers in the state of Missouri in the United States 2 Examining the online learning experience from the student's perspective 3 Presenting in this issue the third in our series on the current state of distance education within select countries from around the world 4 An overview of the implementation of online distance learning within the country of Romania 5 Motivated Strategies for Learning Questionnaire (MSLQ). The MSLQ is an 81-item, self-report instrument designed to measure study participants' motivational orientations and their use of different learning strategies	N/A

Summary of one article

Citation: Leung, J. (2018). DISCOVERING UTILIZATION PATTERNS IN AN ONLINE K--12 TEACHER PROFESSIONAL DEVELOPMENT PLATFORM: Clustering and data visualization methods. *Quarterly Review of Distance Education, 19*(3), 17.

The purpose of this study is to discover the utilization patterns of the content and site features of a K--12 online professional development platform. By data mining web metrics records from Google Analytics (GA), this study allows a comprehensive examination of the patterns between new and returning visitors by applying the simple k-means algorithm and visualizing natural groupings or cluster outputs (Jain, 2010). the free version of Google Analytics was used to extract 13 variables (page, user type, browser, city, page depth, day of the week, new users, users, sessions, bounce rate, session duration, pageviews, and time on page).

It best represents the trend because several articles published in 2018 were about evaluation and this article describes a systematic review of teachers' professional development and the evaluation of the patterns between new and returning visitors by applying the simple k-means algorithm and visualizing natural groupings or cluster outputs (Jain, 2010).

Quarterly Review of Distance Education-Year 2019(8 papers, excluding book review and calendar)

Issue 1	Issue 2	Issue 3	Issue 4
1 Trends in the Quarterly Review of Distance Education From 2002 to 2017 2 Strategies for determining the optimal level of health literacy at which to intervene and suggest specific instructional strategies for various levels of health literacy 3 Specific issues that cut across most courses 4 Definition and Glossary of Terms in Distance Education	1 Factors for students' success in a form of hybrid learning or mixed delivery 2 Understanding how online students identify the characteristics of their physical learning environment, specifically graduate students in an online doctoral program 3 Personal Data, Its Ownership, and Privacy. 4 Multimedia case-based instruction for the online environment: Empowering Health Care Practitioners in the Care of Older Adults	N/A	N/A

Summary of one article

Citation: Orellana, A., & Nethi, V. (2019). Research in distance education: Trends in the "quarterly review of distance education" from 2002 to 2017. *Quarterly Review of Distance Education, 20*(1), 1-14.
This study was conducted to identify trends and gaps in distance-education areas as addressed in the journal Quarterly Review of Distance Education from 2002 to 2017. A directed content analysis methodology was used to classify the articles according to the Zawacki-Richter (2009) validated classification framework of research areas in distance education. The qualitative data analysis software

It best represents the trend because it offers a general idea of the research topics and how the discipline have been evolving. From 2009 to 2013, 60.2% of the articles in the Quarterly Review were classified at the microlevel (interaction and communication in learning communities, 24.4%; learner characteristics, 19%; and instructional design, 16.8%), and the mesolevel area educational technology was the fourth highest, with 8%. Bozkurt et al. found that 51% of the research areas was distributed as follows: microlevel interaction and communication
in learning communities (13%), learner characteristics (12%), and instructional design (11%); and the mesolevel educational technology (15%). The distribution of research areas from 2002 to 2017, per 5-year period, per classification level. The results show that most of the articles analyzed addressed the microlevel research areas consistently in all three 5-year period.

Historical Summary of Journal trends

Over the last 5 years there were 17 issues published with a total of articles. The total number of the articles is 93. Of those articles I can get access to, 31% were focused on “practices”; 69 % were focused in “research”. Some issues include book reviews, conference calendars, and editorials. A majority of the published articles in the journal were focused on different interactions and communications in online platforms. Some of the articles are focused on instructional design. In the earlier years articles focus on theories, concepts, modes, technology transience. 3 issues have the same themes. In the latest issues, the papers have very broad topics, including the reviews, history of terminologies and empirical studies in different environments. Interaction and communication
in learning communities, interventions and perceptions of new strategies, programs still dominated throughout the 17 issues over the past 5 years.

The American Journal of Distance Education-Year 2015 (21 papers, except introduction, editorial, interviews, book review, open learning table of contents and miscellany)

Notes: In the following charts, texts highlighted in yellow are practices; texts highlighted in fuchsia are empirical studies on the impact or the effectiveness of interventions; the fonts in red are the papers related to my research interest.

Issue 1	Issue 2	Issue 3: Quality Matter	Issue 4
1 Evaluating the effect of online instruction on the academic achievement of K–12 students **2 A case study to examine challenges faced by virtual school leaders in the US** **3 Investigating the relationships between academic Self-efficacy, prior experience, satisfaction within online learning and how they vary with age and gender** **4 Two studies that developed the Student Online Misbehaviors (SOMs) scale and explored relationships between the SOMs and various classroom communication processes and outcomes** **5 Comparing faculty and student perceptions regarding factors that affect student retention in online courses/the problem of attrition**	1 The analysis of 7 years of student perceptions of Online Learning 2 Testing the effect of using discussion forums as a space for formative assessments in online mathematics 3 Promoting knowledge convergence through collaborative learning activities 4 Exploring the concept of deep learning through a series of design changes in a graduate education course 5 Identifying the factors impacting persistence through enhancing orientation and the first academic course	1 Describing Quality Matters (QM) as an ongoing design-based research project and an educational input for improving online education 2 Measuring the impact of the Quality Matters (QM) Rubric Findability 3 Investigating the impact of findability on student motivation, self-efficacy, and perceptions of online course quality 4 Analyzing the feedback that peer reviewers provided to course developers 5 Revealing the collaborative efforts between university administration and faculty, Quality Matters 6 Modifying Quality Matters (QM) to reflect pedagogical traditions/ habits of mind in China	1 Investigating why students choose a particular delivery model and students' satisfaction 2 Investigating students' and instructors' approaches and preferences to audio and written comments in online undergraduate composition class 3 Reporting the results of a pilot project involving the simultaneous online delivery of a course 4 Analyzing how the electronic learning community (ELC) process like a community of practice 5 Investigating the impact of discussion forum design and facilitative strategies on student participation and cognitive levels of student dialogue.

Summary of one article

Citation: Ron Legon (2015) Measuring the Impact of the Quality Matters Rubric™: A Discussion of Possibilities, American Journal of Distance Education, 29:3, 166-173, DOI: 10.1080/08923647.2015.1058114

This article answered the question and explain why a more convincing demonstration of the Rubric's impact. This practice best represents the trend because it's one of the specific theme features of Issue 3.

The American Journal of Distance Education-Year 2016(21 papers, except editorial, interviews, interview, open learning table of contents)

Issue 1: Multimedia	Issue 2	Issue 3	Issue 4: Distance Education
1 Examining patterns of participation and making in student blog 2 Examining the use of Facebook and Twitter to augment participants' learning experience in MOOCs 3 Examining the design issues related to a virtual-reality-based, gamelike learning environment (VRGLE) developed via OpenSimulator 4 Analyzing the existing data results to investigate possible similarities and differences in perceptions of Cyberbullying between students who had been affected by bullying and those who had not. 5 Investigating informal professional development through the lens of communities of practice theory	1 Learning strategies/motivational orientations impact on students' sense of achievement in MOCCs based on self-regulated learning 2 Examining how various life factors and personal attributes affect African American adult learners' use of the three types of learning interaction—learner–content, learner–instructor, and learner–learner. 3 An instrument to assess learner–teacher perceive transactional distance 4 Comparing the characteristics of students who excel (those in the top quarter of their class) and students who merely survive (bottom quarter of class) when attending a course either in-class or online.	1 Facilitation experiences, demographic characteristics, and PD activities of rural on-site facilitators 2 Describing two separate studies: a survey of students' textbook perceptions, purchases, and usage for e-textbooks and print textbooks and a conjoint analysis on e-textbook attributes 3 Comparing student and faculty perceptions of text, voice, and screencasting feedback 4 Examining work–life balance and work outcomes among collegiate faculty teaching courses online 5 An instrument to measure online learning self-efficacy 5 Perceptions of self-efficacy in professional knowledge and skills using Praxis II test scores	1 An innovative theoretical model for Distance Education in Developing Country 2 Examining the problem of underrepresentation of minority students in doctoral programs 3 Comparing online/face-to-face training of Critical Time Intervention (CTI) 4 Providing insight into different expectations between Chinese and British academic culture for distance learning 5 Timed tests and test performance 6 Effectiveness of distance education in teacher training

Summary of one article

Citation: Aktaruzzaman, M., & Plunkett, M. (2016). An innovative approach toward a comprehensive distance education framework for a developing country. *American Journal of Distance Education, 30*(4), 211-224. doi:10.1080/08923647.2016.1227098

This article reports on part of a study conducted to collate the policies and practices of two successful distance education providers of the developed world with those of a provider in Bangladesh in order to inform a culturally appropriate distance education framework for a developing country. This article also describes an innovative theoretical model, Adapting Structuration Theory In Distance Education, conceptualized as part of a broader study, to address the underlying issues and to generate propositions for the framework.

This practice best represents the trend because it's one of the specific theme features of Issue 4 and some of the articles in 2016 did the comparisons between 2 models, 2 countries or two characteristics.

American Journal of Distance Education-Year 2017(17 papers, except editorial, interviews, interview, open learning table of contents)

Issue 1	Issue 2	Issue 3:Quality Matters	Issue 4
1 Systematic reviews on synchronous online learning(SOL) in 2 decades **2 Examining the e-learning perceptions and needs of faculty, students, and staff as part of a needs assessment of the e-learning unit** **3 Examining if online college attendance reduces the likelihood that a student uses a social connection to obtain his or her first job out of college** **4 Examining the influence of questions designed with the Practical Inquiry Model (PIM), compared with the regular (playground) questions, on students' levels of cognitive presence in online discussions**	1 Exploring interaction to understand heterogeneity in populations of MOOC learners 2 Learners' satisfaction with MOOCs 3 Enhancing cross-cultural communication 4 Identifying challenges faced by online mentees and successful strategies used by online mentors during the dissertation process	1 Developing an international pool of certified Quality Matters (QM) Peer Reviewers 2 The adoption of Quality Matters training, rubric, and review process to support distance education and online course development 3 Students' perceptions of online course quality 4 PD workshops for online course design on faculty's pedagogical practices in online/face-to-face/ blended instructional modes 5 US-based Quality Matters Higher Education Rubric-Design Standards for Online/Blended Courses and the Chinese higher education environment 6 Online science course offerings and instruction	1 An online proctoring approach to compare proctored and unproctored test administration E-learning tools for criminal justice courses 2 Testing the effectiveness of two experiential e-learning tools for criminal justice courses 3 Empirically investigating the ways in which content, navigation, learning and support, accessibility, interactivity, visual design, and self-assessment and learnability impact the student motivation to learn in a MOOC

Summary of one article

Citation: Miner-Romanoff, K., McCombs, J., & Chongwony, L. (2017). Interactive and authentic e-learning tools for criminal justice education. *American Journal of Distance Education, 31*(4), 242-257. doi:10.1080/08923647.2017.1306771

This mixed-method study tested the effectiveness of two experiential e-learning tools for criminal justice courses. The first tool was a comprehensive video series, including a criminal trial and interviews with the judge, defense counsel, prosecution, investigators and court director (virtual trial), in order to enhance course and learning outcomes. The tool was a comprehensive and Interactive Criminal Justice Computer Model flowchart that allowed the students to work within the multifaceted and complex systems and explore descriptions, concepts, theories, relationships, and sequences in order to enhance learning outcomes regarding the system(s) of justice. Survey data were collected from an array of learning and criminal justice professionals. Student self-assessments and course satisfaction indicators were administered.

This practice best represents the trend because it's one of the major articles in 2017 that investigated the effectiveness of dependable variables.

American Journal of Distance Education-Year 2018(19 papers, except editorial, interviews, interview, open learning table of contents)

Issue 1	Issue 2	Issue 3	Issue 4
1 The effect of U-Pace instruction for older undergraduates, ages 25 and older, and younger undergraduates, ages 18 to 24 2 Comparing ego network parameters of high/ low performing students in online discussion spaces 3 Examining how students' academic level and use of 8 motivational regulation strategies influence 3 types of student engagement: behavioral engagement, emotional engagement, and cognitive engagement 4 Meta-synthesis of quality of online education measurement approaches 5 Systematic review on Students Recovering Course Credits Online 6 Review of 3 specific areas: the proliferation of credit recovery courses, the student experience in credit recovery courses, and outcomes and impacts of credit recovery in High School	1 Outlining the approaches adopted in offering a first-year chemistry course, in parallel, through face-to-face and distance modes 2 Marketing patterns for nonprofit K-12 virtual schools 3 Transitioning From On-Campus to Online in a Nursing Program 4 Showing the efficacy of the online academic support program and identifying influences that affected student adoption of academic support through videoconferencing.	1 Life-cycle of online courses and student engagement 2 Implementing a peer-help forum in an online technology course, and investigating students' engagement in the forum, their perceptions, and the relationship between peer help and course performance 3 Students perceptions of engagement with the course content and one another 4 Assessing students' ability to evaluate their biases of advertisements	1 Effects of music/sound effects on learning outcomes when compared to voice-only narration 2 University students' perceptions of online peer assessment regard to it being a learning tool and contributing to motivation and interaction 3 Comparing student performance in face-to-face and online sections taught by the same instructor 4 Examining faculty productivity by university classification and by discipline 5 Students' Collaborative Learning Attitudes and Their Satisfaction with Online Case-Based Courses

Summary of one article

Citation: Park, S., & Yun, H. (2018). The influence of motivational regulation strategies on online students' behavioral, emotional, and cognitive engagement. *American Journal of Distance Education, 32*(1), 43-56. doi:10.1080/08923647.2018.1412738

In this study, the researchers examined how students' academic level and use of 8 motivational regulation strategies influence 3 types of student engagement: behavioral engagement, emotional engagement, and cognitive engagement. This practice best represents the trend because it's one of the major articles to investigate the effect.

American Journal of Distance Education-Year 2019(19 papers, except editorial, interviews, interview, open learning table of contents)

Issue 1	Issue 2	Issue 3	Issue 4
1 Examining the relationship between students' subjective feelings about the learning process in virtual and blended courses (VC and BC) 2 Responsibilities of Online Teachers /On-Site Facilitators in 3 Online K-12 Courses Testing Conditions 4 The potential of distance learning to prepare preservice teachers 5 Critical Thinking for Faculty in Online Health Certificate Program	1 Student perceptions of online learning before and after the course learning sequence, and instructors accommodations 2 Differences in student learning outcomes associated the online learning resources 3 Challenges of MOOCs for Students from developing countries 4 Comparing students' expectations/perceptions of student support services 5 Describing a novel, innovative video-based medical education project using YouTube for teaching, training, and learning	1 Faculty Perceptions of Teaching High-Enrollment Online Courses 2 The effect of school type on physical activity participation 3 Comparing the academic outcomes of students taking a developmental mathematics course in a blended setting and a fully online setting 4 Understanding instructor's perspective on online course design 5 The structure of the MOOC ecosystem from the perspective Class Central and MOOC List	1 Business faculty and online education through the theoretical framework of transformative learning 2 Learners' Perceptions and Experiences of MOOCs Learning styles between students in online and face-to-face sections taught by three instructors 3 Utilizing distance educational technology to deliver first-year pre-clinical lecture content 4 A systematic literature review for the definitions of online learning

Summary of one article

Citation: Li, K., & Canelas, D. (2019). Learners' perceptions and experiences of two chemistry MOOCs: Implications for teaching and design. *American Journal of Distance Education, 33*(4), 245-261. doi:10.1080/08923647.2019.1639469

This article analyzed in-depth interviews with learners from two MOOCs on the same subject. Findings confirm that learners enrolled in MOOCs for career and/or personal purposes. Learners' expressions of feeling a human connection to the instructor in videos had important implications for video editing decisions. Many of the reasons given for dropping out of active participation in MOOCs were related to the learners' lack of time because of other commitments. We expect the results from this study to provide a new understanding of MOOC learners and their perceptions of the courses; key insights should guide video editing considerations and encourage the use of instructor communication pathways such as regular emails to students in future MOOC offerings.

This practice best represents the trend because MOOC is a hot topic in 2019 and this article would provide a new understanding of MOOC learners and their perceptions of the courses, which covers the majority of the themes in 2019.

Historical Summary of Journal trends

Over the last 5 years there were 20 issues, with a total number of 97 articles. The articles are based on educational background and focus on online learning. Most articles are about the looking into the interventions, perceptions of faculty and students. 8% of the articles are practices and the others are empirical studies. In the first few years, a majority of the published articles in the journal were focused on investigating the effectiveness of the new models, some programs, standards, assessment tools, methods, and strategies and Quality Matter. Some of the articles are focused on perceptions, factors that impact learning and the cause and effect relationships. In the latest years articles focus on perceptions, comparison of different groups or environment, perceptions of faculty and technology integration.

A Hypertext History of Instructional Design

This website has provided ample information about the history of instructional design. Before 1920 was a period dominated by a fundamental shift in thinking about education which was supported by the advent of scientific investigation into human and animal learning. Instruction had been dominated by the idea that the mind, like the body, could be developed with exercise. 'Principles of Psychology' (1890) by William James has introduced many principles that are still applicable in modern society. In his book, he pointed out interest is the best teacher that allure students to different subjects. Educators should seize the wave of the pupil's interest in each successive subject before its ebb has come, so that knowledge may be got, and a habit of skill acquired. It also inspired a growing number of graduate-students including Thorndike, who was one of the most influential contributors to this shift to an empirical knowledge base for education.

The period the 1920s was dominated by matching of society needs to education and connecting outcomes and instruction. Individualized Instruction plans were developed that allowed learners to progress at their own pace with minimum teacher direction. Contract learning (To the agreement of learning contracts, students at their own pace.) and mastery learning (mastering the current materials and then proceeding) emerged, and the roots of job analysis and task analysis developed.

I was so surprised to read The Progressive Movement in education in the 1930s. The perspectives from the Progressives are still advanced theories nowadays. I applaud that education is a continuous reconstruction of living experience, with the child the center of concern. This period was characterized by slow progress toward the evolution of instructional development. The 8-year study plan by Ralph Tyler was designed to meet the needs of the increasing and confirmed that objectives could be clarified if written in terms of student behaviors. Formative evaluation was used for the first time during the study. Crespi did rat experiments to see the effects of rewards on the rats. Reward has little or no influence on the speed of learning but it does have an influence on the performance of tasks already learned.

In the 1940s, this period was dominated by military training needs. The role of an instructional technologist emerged. In addition to subject-matter experts and technical experts, there was also a need for a professional who could contribute expertise in education.

In the 1950s, this period is characterized by the birth and development of Programmed Instruction. Behaviorism flourished. Task analysis was first used by the Air Force personnel to refer to procedures for anticipating the job requirements of new equipment under development. In 1956 Benjamin Bloom and co-authors, M. Englehart, E. Furst, W. Hill, and D Krathwohl, published their Taxonomy of Educational Objectives for the Cognitive Domain, which prove extremely valuable in the specification and analysis of instructional outcomes and the design of instruction to attain them. During this period the IBM Teaching Machines Project was developed.

In the 1960s, this period was distinguished by the articulation of components of instructional systems and the recognition of their system properties. In 1962 Robert Glaser employed the term instructional system and named, elaborated, and diagramed its components. n 1965, Robert Gagne published The Conditions of Learning. The systems approach to designing instruction was introduced by James Finn. Norman Crowder developed "intrinsic" programming. Gordon Pask enlarged upon Crowder's ideas about non-linear sequencing. A shift from norm-referenced testing to criterion-based testing was noted.

In the 1970s, Cognitive approach was still dominant. Gagne's model which describes the set of factors that influence learning and that collectively may be called the conditions of learning. The birth of AECT and the proliferation of models of instructional design was noted as well as the development of needs assessment procedures by Kauffman and others.

In the 1980s, Performance technology (Gilbert) and the focus on identifying the gaps between actuals and optimals (Rossett) and whether the discrepancy was due to lack of incentive, lack of knowledge or skills, or lack of environmental support. Microcomputer instruction (CBI/CBT) flourished in this decade with the emphasis on design for interactivity and learner control. PLATO (Programmed Logic for Automatic Teaching Operation) is a timesharing system designed for Computer-Based Education. The original goal of the PLATO project was to design a computer-based system for instruction.

In the 1990s, this period focused on designing learning environments based on a constructivistic approach to learning and multimedia development. Hypertext and hypermedia influence the field and cross cultural issues are bridged using the Internet.

A History of Instructional Design and Technology: Part I: A History of Instructional Media

- **A definition of the field**
  The field of instructional design and technology encompasses the analysis of learning and performance problems, and the design, development, implementation, evaluation and management of instructional and non-instructional processes and resources intended to improve learning and performance in a variety of settings, particularly educational institutions and the workplace.
- **The major features**
  (a) design, Co) development, (c) utilization or implementation, (d) management, and (e) evaluation, often associated with the field; and adds a sixth category, (f) analysis
- **The rationale for using instructional design**
  This term, which has been employed by one of the professional organizations in our field (Professors of Instructional Design and Technology), directly refers to the key concepts mentioned earlier--instructional design and instructional technology (i.e., instructional media). Moreover, as my description of the history of instructional design will indicate, in recent years many of the concepts associated with the performance technology movement have been regularly employed by those individuals who call themselves instructional designers.
- **Definition of instructional media**
  As the physical means, other than the teacher, chalkboard, and textbook, via which instruction is presented to learners.
- **Events in the history of instructional design media from the early 1900s to the present**
  The first decade of the 20th century, school museums came into existence. As Saettler (1968) has indicated, these museums "served as the central administrative unit(s) for visual instruction by (their) distribution of portable museum exhibits, stereographs (three-dimensional photographs), slides, films, study prints, charts, and other instructional materials" (p. 89). Besides magic lanterns (lantern slide projectors) and stereopticons (stereograph viewers), which were used in some schools during the second half of the 19th century (Anderson, 1962), the motion picture projector was one of the first media devices used in schools. During the 1920s and 1930s, a number of textbooks on the topic of visual instruction were written. By the early 1930s, many audiovisual enthusiasts were hailing radio as the medium that would revolutionize education. During World War II, training films also played an important role in preparing civilians in the United States to work in industry. In the decade following the war, several intensive programs of audiovisual research were undertaken. In the 1950s was the increased interest in television as a medium for delivering instruction. In the 1980s, computers were first used in education and training at a much earlier date. Although computers may eventually have a major impact on instructional practices in schools, by the mid-1990s that impact had been rather small. Since 1995, rapid advances in computer and other digital technology, as well as the Internet, have led to a rapidly increasing interest in, and use of, these media for instructional purposes, particularly in training in business and industry.
- **The impact of media on instruction in the future**
  Computers, the Internet, and other digital media will bring about greater changes in instructional practices than the media that preceded them. However, in light of the history of media and its impact on instructional practices, I think it is reasonable to expect that such changes, both in schools and in other instructional settings, are likely to come about more slowly and be less extensive than most media enthusiasts currently predict.

A History of Instructional Design and Technology: Part II: A History of Instructional Design

In the field of instructional design and technology, those whose work is influenced by the lessons learned from the history of media and the history of instructional design will be well-positioned to have a positive influence on future developments within the field.

The key defining elements of this field instructional design and technology consist of (a) its listing of six categories of activities or practices (analysis, design, development, implementation, evaluation, and management) often associated with the field; (b) its identification of research and theory, as well as practice, as important aspects of the profession; and (c) its recognition of the influence the performance technology movement has had on professional practices.

How did this instructional design process come into being?

The origins of instructional design procedures have been traced to World War II (Dick, 1987). During the war, a large number of psychologists and educators who had training and experience in conducting experimental research were called on to conduct research and develop training materials for the military services.

Immediately after World War II, many of the psychologists responsible for the success of the military training programs continued to work on solving instructional problems. During the late 1940s and throughout the 1950s, psychologists working for such organizations started viewing training as a system, and developed a number of innovative analysis, design, and evaluation procedures (Dick, 1987). The programmed instruction movement, which ran from the mid-1950s through the mid-1960s, proved to be another major factor in the development of the systems approach. In the early 1960s, Robert Mager, recognizing the need to teach educators how to write objectives, wrote *Preparing Objectives for Programmed Instruction* (1962). Many current-day adherents of the instructional design process advocate the preparation of objectives that contain these three elements: desired learner behaviors, the conditions under which the behaviors are to be performed, and the standards (criteria) by which the behaviors are to be judged. In the 1950s, behavioral objectives were given another boost when Benjamin Bloom and his colleagues published the *Taxonomy of Educational Objectives.* In the early 1960s, another important factor in the development of the instructional design process was the emergence of criterion-referenced testing. Robert Glaser (1963; Glaser & Klaus, 1962) was the first to use the term criterion-referenced measures. In discussing such measures, Glaser (1963) indicated that they could be used to assess student entry-level behavior and to determine the extent to which students had acquired the behaviors an instructional program was designed to teach. The use of criterion-referenced tests for these two purposes is a central feature of instructional design procedures. Another important event in the history of instructional design is the book *The Conditions of Learning*, written by Robert Gagné (1965b). Gagné described five domains, or types, of learning outcomes. Gagné also provided detailed descriptions of these conditions for each type of learning outcome. In the same volume, Gagné also described nine events of instruction, or teaching activities, that he considered essential for promoting the attainment of any type of learning outcome. Gagné went on to describe a hierarchical analysis for identifying subordinate skills. This process remains a key feature in many instructional design models.

In 1967, Scriven named this tryout and revision process formative evaluation, and contrasted it with what he labeled summative evaluation. In the early and mid-1960s, the concepts that were being developed in such areas as task analysis, objective specification, and criterion-referenced testing were linked together to form processes, or models, for systematically designing instructional materials. Other instructional design models created and employed during this decade included those described by Banathy (1968), Barson (1967), and Hamerus (1968). During the 1970s, the number of instructional design models greatly increased. A detailed discussion of a few of these models, as well as a number of those developed in the 1980s and 1990s, is contained in Gustafson and Branch (1997b). During the 1970s, interest in the instructional design process flourished in a variety of different sectors. The interest in instructional design that burgeoned during the previous decade continued to grow during the 1980s. Instructional design had minimal impact in other areas. A factor that did have a major effect on instructional design practices in the 1980s was the increasing interest in the use of microcomputers for instructional purposes. It was during the 1990s, however, that the field was significantly affected by this movement. A variety of developments had a significant impact on instructional design principles and practices. Another factor that affected the field was the growing interest in constructivism. Rapid growth in the use and development of electronic performance support systems also led to changes in the nature of the work. Additionally, there was an increasing interest in rapid prototyping, using the Internet for distance learning and knowledge management.

Historical and Philosophical Foundations of Instructional Design: A North American View

The thesis of this chapter: the inherent nature of the ID process was determined by its very ancestry.

I think I have questions about the thesis even though the author has given the examples. I will hold my question until I finish reading it.

Systematic approach refers to a much more general and hence less infinitive idea. It is simply the idea of viewing a problem or situation in its entirety with all ramifications, with all its interior interactions, with all its exterior connections and with full cognizance of its place in its context.

During the 1960s the systems approach began to appear in procedural models of instruction in U.S. higher education. The Instructional Development Institute (IDI) was a packaged training program on instructional design for teachers, and between 1971 and 1977 it was offered to hundreds of groups of educators. Because it was usually conducted by faculty and graduate students from nearby universities, the ID1 became an extremely influential vehicle for disseminating its methods among educational technology faculty and students across the United States. The ID1 model and ID1 teaching materials were soon being used in ID courses across the country. The analysis, synthesis, evaluation cycle that characterizes the design mentality generally has been visible since the very origin of instructional design.

Instructional design can be seen as having two parents-systems engineering and behaviorist psychology.

Conclusion of Historical Review

There is an identifiable construct by this name and it does have relatively stable characteristics. I agree with this idea because although the number of instructional design models greatly increased, the essence among these models haven't been changed.

Philosophical Issues

By and large, both practitioners and academics have devoted their energies mainly to testing and refining the procedures of ID, enhancing the tool kit, and promoting the acceptance of ID within their institutions. Philosophical assumptions largely went unexamined throughout the 1970s and 1980s.

This situation changed in the 1990s. The emergence of a lively debate about philosophical foundations of instructional design has been stimulated principally by the gauntlet flung down by two different parties of, combatants: the postmodernists and the constructivists. They hold the opposite stances. Constructivist instructional design aims to provide generative mental construction "tool kits" (Jonassen, 1991) embedded in relevant learning environments that facilitate knowledge construction by learners. Compared to traditional instructional systems approaches of designing instruction, constructivism makes a different set of assumptions about learning and suggests new instructional principles.

In general, two loosely associated groups are identified: first, radical constructivists who insist that every reality is unique to the individual and second, non-radical or social or moderate constructivists who believe that shared reality grows out of social constraints placed on the constructive process of the individual.

Axiological issues are those related to values-for example, how to decide on criteria for goodness (ethics) and beauty (aesthetics).

Moderate constructivists emphasize the importance of epistemological issues but tend to view their own insights as extensions of prior cognitivist theory, requiring major shifts in instructional strategy, at least for certain types of learning tasks, but not necessarily implying a radically different philosophy. They tend to identify with Piaget and Bruner as early advocates of a constructive view of human learning. They aim to develop more powerful instructional strategies for facilitating learner construction of' knowledge.

Behaviorism focuses on the importance of the consequences of those performances and contends that responses that are followed by reinforcement are more likely to recur in the future. No attempt is made to determine the structure of a student's knowledge nor to assess which mental processes it is necessary for them to use (Winn, 1990). The learner is characterized as being reactive to conditions in the environment as opposed to taking an active role in discovering the environment. Cognitivism theorists manipulate the materials to be presented by an instructional system to procedures for directing student processing and interaction with the instructional design system (Merrill, Kowalis, & Wilson, 1981). Constructivism is a theory that equates learning with creating meaning from experience (Bednar et al., 1991). Even though constructivism is considered to be a branch of cognitivism (both conceive of learning as a mental activity), it distinguishes itself from traditional cognitive theories in a number of ways. Most cognitive psychologists think of the mind as a reference tool to the real world; constructivists believe that the mind filters input from the world to produce its own unique reaIity (Jonassen, 1991a).This paper analyzed the history of instructional design based on the philosophical foundations and I understand the thesis.

What is the Design Science of Instruction?

- What is The Design Science of Instruction?
  The major products of the science of instruction are prescriptive principles of instruction. These principles allow instructional designers to prescribe instructional methods that are likely to be optimal for given sets of conditions, and they help instructional evaluators to identify methods that are not optimal for given sets of conditions.
- One important aspect of this descriptive-prescriptive distinction
  There is only one type of professional in a descriptive science-the scientist—whereas there are three types of professionals related to a prescriptive science—scientists, who discover principles, technologists, who use those principles to develop procedures or machines, and technicians, who use those procedures or machines to produce products.
- The fundamental purpose of the design science of instruction
  To improving the quality of instruction.
- The three major phases in instructional development
  (1) design, which is, for an instructional developer, what a blueprint is for a builder, (2) production, which is the using of the design to make an instructional program and (3) validation, which is the determination of the quality or validity of the final product. Merrill (1975) proposed that there are three major approaches—artistic, raw empirical, and analytic—toward these three phases of instructional development, and that any one of the three approaches can be used on any one of the phases.
- The three approaches are essential to me in the following ways
  I think I won't be skeptical about my institutive ideas. According to the researchers, the artistic approach is subjective and entails the use of institution, taste, and experience for designing, producing, or validating instructional programs. I also need to try something based on the intuition and collect data to see if it works. Try to modify and see the results of acceptance. Then entail a set of well-tested measurement techniques or procedures which are based on proven principles.
- What is Instructional Science?
  Instructional science, like all prescriptive design sciences, has three types of professionals related to it; (1) scientists, who discover principles, (2) technologists, who use those principles to develop procedures, and (3) technicians, who use those procedures to produce instructional products.
- What is Theory Construction?
  The testing of instructional strategy variables or components by selectively adding or removing them from whole systems or models of instruction. In such a process, it may be discovered that some uninvestigated characteristics, such as some content strategy or instructional management variables, may have a larger impact on instructional outcomes than the most significant of the variables already investigated. Interaction effects can also be more effectively investigated by such a process.
- An Example of Theory Construction
  Merrill and his colleagues (Merrill & Boutwell, 1973; Merrill & Wood, 1974, 1975a) have developed a broad taxonomy, which identifies, describes, and classifies presentation strategy variables, such as attribute isolation, mnemonics, divergent examples, and type of representation. This was a particularly important step, considering that different instructional researchers and theorists often use the same label to refer to different concepts, and different labels to refer to the same concept. A lack of precision in the scientific language of instruction has greatly impeded the communication and interpretation of theoretical and research work.

In summary, instructional science is the foundation of the analytic approach to instructional development; and it entails intuition and research work as inputs and the derivation of prescriptive principles and theories (i.e., sets of interrelated principles) of instruction as its outputs. A major portion of instructional scientists' activities involves analyzing the components of instructional tactics and strategies as to their effectiveness, efficiency, and appeal under different conditions (primarily diverse student characteristics and subject-matter characteristics) in order to derive the prescriptive principles and theories of instruction.

Descriptive and Prescriptive Theories of Learning and Instruction: An Analysis of their Relationships and interactions

The forward attracted me when I read it. My research interest is instruction. This chapter will differentiate learning theory and instructional theory to help me better understand and advance my understanding of instruction.

The process of instruction is described as a special case of "cybernetic control processes," which are mechanisms (such as a household thermostat) that provide feedback that allows a system to adjust to certain conditions. This Systems-Theory comparison facilitates the analysis and understanding of the instructional process.

According to cybernetics, each process of an organized activity represents a series of some agent's actions directed at some object(s) and aimed at attaining a specified goal under given conditions. In order to achieve a goal (i.e. bring about a desired transformation of an object's state), the agent should know such things as the nature of the object, the characteristics of its states, the laws of their transition from one to another, and the dependence of the transition on certain external and internal conditions.

DESCRIPTIVE THEORIES, PRESCRIPTIVE THEORIES, AND PROGRAMS OF INSTRUCTION

- Descriptive Theories

What are the sources of a teacher's knowledge of instructional programs and/or processes? The first of them (historically and often ontologically) is one's own and other teachers' practical experiences of what happens (or what outcomes appear) if one performs some instructional actions under certain conditions.

- Descriptive Instructional Theory

When teachers or instructional theorists become well aware of these connections and state them in the form of "if a and A. then a" statements, these statements become descriptive propositions. After being verified and organized in some system, this system of propositions forms a descriptive instructional theory.

- Prescriptive Theories

If conditions are changed in order to be able not just to passively predict what will happen with the phenomenon under certain conditions. but to actively elicit or produce desired outcomes, descriptive theory is not enough. We have to have a different set of proposition that would point out to us what should be done with a phenomenon in order to elicit or produce desired outcomes. An organized

set of such propositions would constitute a prescriptive theory.

- Instructional Programs

Even if we had a coherent and comprehensive prescriptive theory of instruction. a teacher would not be able to solve his or her particular instructional problems by simply knowing a set of propositions of the theory. (The instructional process may be viewed as solving a series of specific instructional problems.)

- How to teach effectively?

A teacher should be provided either with a set of programs for solving particular instructional problems or with a method as to how to independently develop an instructional program (algorithmic or nonalgorithmic) on the basis of known descriptive and prescriptive instructional theories.

LEARNING THEORIES AND PROGRAMS: THEIR RELATIONSHIPS WITH INSTRUCTIONAL THEORIES AND PROGRAMS

The major difference between them is that instructional theories and programs deal with relationships between teachers'---or teaching---actions as causes and students' psychological and/or behavioral processes as effects(outcomes).

TWO OBJECTIVES OF INSTRUCTION

Prescriptive theories of learning would be aimed at direct development from outside of knowledge and skills, without teaching students how, through independent learning operations, to arrive at this knowledge and skills on their own. That is to say, only develop particular knowledge and skill, without developing the ability to learn. Prescriptive theories of instruction would be aimed at teaching a learning operation (a skill to learn), which would lead to independent acquisition of the knowledge and performance skill, which leads to developing self-regulating and self-control psychological mechanisms.

A Layers-of-Necessity Instructional Development Model

- The Instructional Design Model (ID model)

To meet the primary responsibility of instructional developers, many models were made to help developers to guide the instructional design and development process. Many of the models are patterned after “sequential waterfall model”. The good example is from the Dick and Carey model. This model is widely known among ID professionals.

After comparison, Andrews and Goodson's (1980) comparative analysis of ID models leaves the distinct impression that most ID models are more alike than different, at least in terms of which components are included in the various models, if not in terms of how the components are related. all components are considered "required"; none are given "optional" status. Each component also appears only once in the model; a component is usually not reconsidered unless "tryouts" indicate that revision is necessary. Each component is fully executed;

A practitioner's model of ID is a representation of what exists today, of what developers do on the job. It accommodates a range of developer expertise and practice, from extremely simplified to highly complex and sophisticated approaches.

- The Instructional Design Model

Based upon the time and resources available to the developer, the developer chooses a layer of design and development activities to incorporate into an instructional product or project. The layer is matched to the necessities of the project. Each layer is a self-contained ID model. For situations with severe time and resource limitations, only the simplest layer may be possible; for situations with more time and resources, a more sophisticated layer may be used. A developer can choose to start with any layer (i.e., model) that suits the situation. If additional time or resources are available, however, after completing the initial layer of design and development activities, additional design and development features can be drawn from more sophisticated layers and incorporated into the product or project.

- The characteristics of the model

A layered approach assumes that components of the ID process will be repeated to a greater degree of precision and sophistication in subsequent layers of the process. This repetition is not for the purpose of revising earlier components (as iterative models suppose), but of adding onto the work that was done earlier.

Principles should govern design and development activities. This perspective suggests that ID is based upon two sets of principles or guidelines. The first set of principles ("Layer-Selection Principles") determines which [D activities are appropriate given time and resource constraints. The second set ("Layer-Implementation Principles") governs how the various design and development activities are implemented.

In a layered approach, each layer is a merged set of tasks or questions that cut across the discrete stages of traditional models. Layers are not distinguished by the type of task, but by the level of complexity associated with the tasks in that layer. The discrete tasks of a layer are unified by virtue of their common purpose: adding to product design/development within project constraints.

The model is opportunistic, identifying what can be done within project boundaries. The complexity and sophistication of the ID activities in a layer is determined using a cost-benefit approach to design: select activities that are likely to have the greatest instructional benefit for the least resource/time cost.

A layered approach seeks to develop effective instruction as well, but effectiveness activities (i.e., design and development tasks) are determined by what can be done in the situation, not what ought to be done.

- How does this model work?

Situational Assessment begins when a performance improvement need is identified. *Goal and Task Analysis* involves answering the questions to interact with the subject-matter expert and/or subject-matter materials to develop a conceptualization of the performance task. Once the goal and tasks are analyzed, *Instructional Strategy Development* can begin. *Materials Development* in the layers-of-necessity model is driven by the instructional strategy, time constraints, and resource constraints. *Evaluation and Revision* are critical components of the model, even at the highest level.

The future of our field in practice and research

Previous research has been conducted based on student learning. The future trend would still be focused on instructional practices that teachers can use to facilitate students' learning. We have learned ample traditional theories of instruction. However, as time goes on, there should be some reforms to meet the current learning environment. More educational practices would be integrated into theoretical frameworks.

A variety of instructional systems theories have had a profound and persistent influence on educational practice in K-12 settings. B.F. Skinner, the father of operant conditioning, is usually credited with the development of programmed instruction. The concept of task analysis was applied to general education in early work by Frank and Lillian Gilbreth, expanded by Robert Miller (Miller, 1953) and utilized by Gagne (1987) as part of his description of the hierarchical nature of learning. Bloom suggested a variety of strategies that can be used in classrooms to provide conditions for mastery learning including the use of tutors, small group study, peer tutoring, programmed instruction, audiovisual materials and games. Robert Gagne is best known for his development of a model of instruction based on human learning. Prior to Gagne, learning was often conceptualized as a single, uniform concept. No distinction was made between learning to load a rifle and learning to solve a complex mathematical problem. Among Gagne's contributions was the notion that there are various types of human learning and that each of these types of learning require different kinds of instructional strategies. Madeline Hunter. She suggests that her strongest contribution to education was not additional theory, but the development of the technologies needed by teachers to implement new theories of learning.

There are still unanswered questions for future research. The ultimate goal of developing theories is to facilitate learning.

The other is technology-based learning instruction. With the development of technology, how people can utilize advanced technology to best help students in the learning process. This is another trend. With the development of simulation, robot program, IR, VR, IVR and AI, how can we take advantage of them and create a better learning environment and support students to reach a higher learning and thinking level? Educators should be skilled at incorporating technology when approaching a problem and solving it using reasoning, creativity and expression, as well as providing a new way to demonstrate content knowledge.

In the future research, as technological advances, new ideas and theories regarding the learning process and new views of how to promote learning and performance in classrooms and in the workplace will be the trend.

Currently there are various good examples of ID models to guide instructional developers to design and develop instructional solutions to performance problems. However, limitations have been pointed out in many ID models. In the future, it is still essential to design easy-to-understand and easy-to-practice models. The future models should be designed based on the real situation existing today. It should accommodate a range of developer expertise and practice, from extremely simplified to high complex and sophisticated approaches. This can be also applied for the new technology mentioned above. To accommodate the usage of new technology, it's pivotal to develop new models of instructional design so that we can make full use of the new features of new technology.

As for the future practitioners' and educators' knowledge of instruction, it's critical to differentiate between learning theory and instructional theory; between prescriptive theory, descriptive theory, and practice; and the relationships among all of these.

Based on the review of instruction, Analysis of methods of building effective and efficient learning and instructional programs that virtually determine the effectiveness and efficiency of real learning and instructional processes is a special task requiring special consideration in the future.

Review of Papers Related to My Research Field

Lei Wang

Instructional Design, Development and Evaluation

The most important aspects of ID Profession and ADDIE

- Nowadays instructional design has been an established profession as well as an area of study. As a profession, it consists of a series of well-defined competencies, which are an internationally validated set of standards that define a competent instructional designer.

The most important aspects of ID Profession and ADDIE

- These ID competencies serve many purposes in the profession. They are used as hiring guidelines, evaluation criteria, and professional development guidelines. They can help build my competencies and support my ongoing professional development in my future career.
- On the other hand, as an area of study, it has a rich and growing foundation of research and theory viewed from diverse points of view. Both the practice and the study of ID can be seen in two ways: as strategies for creating particular products and as the implementation and management of the overall design process.
- Competent instructional designers can use instructional design theories and research-based principles of instruction and learning to inform their design thinking, use instructional design processes to inform their strategic work processes and activities and technical tools or equipment that best support learning and delivery of instruction to create well-designed instruction.

Summary of early historical and foundational trends

- A variety of instructional systems theories have had a profound and persistent influence on educational practice in K-12 settings.
- B.F. Skinner, the father of operant conditioning, is usually credited with the development of programmed instruction.
- The concept of task analysis was applied to general education in early work by Frank and Lillian Gilbreth, expanded by Robert Miller (Miller, 1953) and utilized by Gagne (1987) as part of his description of the hierarchical nature of learning.
- Bloom suggested a variety of strategies that can be used in classrooms to provide conditions for mastery learning including the use of tutors, small group study, peer tutoring, programmed instruction, audiovisual materials and games.
- Robert Gagne is best known for his development of a model of instruction based on human learning. Prior to Gagne, learning was often conceptualized as a single, uniform concept.
- Madeline Hunter. She suggests that her strongest contribution to education was not additional theory, but the development of the technologies needed by teachers to implement new theories of learning.

Summary of early historical and foundational trends

- There are still unanswered questions for future research. The ultimate goal of developing theories is to facilitate learning .
- The other is technology-based learning instruction. With the development of technology, how people can utilize advanced technology to best help students in the learning process. This is another trend. With the development of simulation, robot program, IR, VR, IVR and AI, how can we take advantage of them and create a better learning environment and support students to reach a higher learning and thinking level? Educators should be skilled at incorporating technology when approaching a problem and solving it using reasoning, creativity and expression, as well as providing a new way to demonstrate content knowledge.
- In the future research, as technological advances, new ideas and theories regarding the learning process and new views of how to promote learning and performance in classrooms and in the workplace will be the trend.

OVERVIEW

- In the past two weeks, I am working on the papers that are related to teachers' and students' perceptions in K-12 educational settings of using technology tools/ platforms， K-12 teachers' instructional practices to support learners' self-regulated learning or any papers that are related to self-regulated learning. There are not too many papers focusing on K-12, so I enlarge my scope and read the papers that investigate students and teachers' perceptions in the following 5 journals. Here is what I found.

Performance Improvement Quarterly

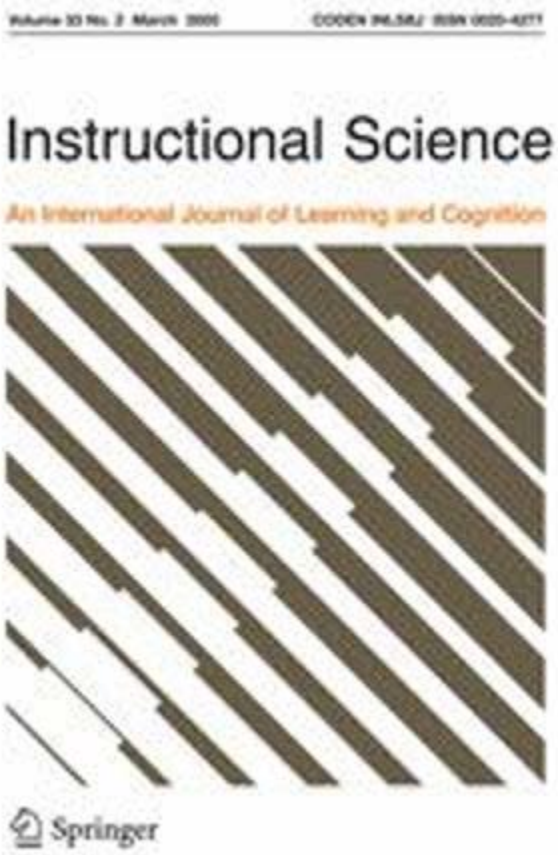
- Like our professor mentioned last time, all papers are the interdisciplinary field of performance improvement (PI) and human performance technology through the publication of scholarly works including literature reviews, experimental studies, survey research, and case studies.
- The environment includes business, workplace, universities, organizations, medical services, workplace, air force, conglomerate, African community, marketplace and so forth.
- No paper is related to my research interest.

Screenshot of the latest issues

1 The value of fixed versus faded self-regulatory scaffolds on fourth graders' mathematical problem solving 2 Fading distributed scaffolds: the importance of complementarity between teacher and material scaffolds 3Using TIMSS items to evaluate the effectiveness of different instructional practices 4 Investigating the effects of writing tasks and prompts on knowledge integration across domains 5 Investigating whether learning by writing explanations can be enhanced when students additionally receive computer-based feedback on the cohesion of their explanations	1Emotion regulation tendencies, achievement emotions, and physiological arousal in a medical diagnostic reasoning simulation 2 Fostering creative performance in art and design education via self-regulated learning 3 Bolstering students' written argumentation by refining an effective discourse intervention: negotiating the fine line between flexibility and fidelity 4 A specific benefit of retrieval-based concept mapping to enhance learning from texts 5 A pre-post-test design with a follow-up 4 weeks later to investigate whether a computerised training in identifying structural components of informal arguments can improve university students' competences to understand complex arguments.	1 How the problem-solving process in successful tutoring situations differs from that in unsuccessful tutoring situations with regard to cognition, motivation and increasing task complexity 2 Effects of problem–example and example–problem pairs on gifted and nongifted primary school students' learning 3 Investigating the impact of spacing on L2 incidental vocabulary learning. 4 Immediate and delayed effects of a modeling example on the application of principles of good feedback practice: a quasi-experimental study 5 Two experiments investigated the extent to which the concreteness of titles affects metacognitive text expectations, study motivation, and comprehension test performance.	1 Investigating cognitive style (the visualizer–verbalizer dimension) and cognitive ability (spatial and verbal abilities) in terms of corresponding resource use behavior. The study further examined the potential link 2 Examining Chinese kindergarten children's psychological needs satisfaction in problem solving: A self-determination theory perspective 3 Examining the effects of service-learning on student outcomes 4 The effects of totally or partially self-generating a graphic organizer on students' learning performances 5 Developing a smart K-12 classroom infrastructure to support real-time student collaboration and inquiry: a 4-year design study

Instructional Science

- Over the last 5 years there were 30 issues published with a total of 172 articles. The total number of the articles is 85. Of those articles I can get access to,9% were focused on “practices”; 91 % were focused in “research”.
- A majority of the published articles in the journal were focused on investigating the effectiveness of the new models, some programs, standards, assessment tools, methods, and strategies. Some of the articles are focused on perceptions and the cause and effect relationships. This is similar to PIQ. In the latest issues, there are more articles on practices, especially in 2018.
- New terminologies are burgeoning, in latest issues, we have seen L2 incidental vocabulary learning, service learning.
- About 5 articles are about self-regulated learning, but the research was conducted from a very specific angle.



Instructional Science

1. Engaging elementary students in learning science: an analysis of classroom dialogue
2. The effectiveness of volition support (VoS) in promoting students' effort regulation and performance in an online mathematics course
3. Demonstration-based training (DBT) in the design of a video tutorial for software training
4. Preservice teachers' use of contrasting cases in mathematics instruction
5. Peer feedback mediates the impact of self-regulation procedures on strategy use and reading comprehension in reciprocal teaching groups
6. Effects of a rubric for mathematical reasoning on teaching and learning in primary school
7. Charting the routes to revision: An interplay of writing goals, peer comments, and self-reflections from peer reviews
8. Self-regulation of secondary school students: self-assessments are inaccurate and insufficiently used for learning-task selection
9. Varying effects of subgoal labeled expository text in programming, chemistry, and statistics
10. The value of fixed versus faded self-regulatory scaffolds on fourth graders' mathematical problem solving
11. Fostering creative performance in art and design education via self-regulated learning
12. Developing a smart classroom infrastructure to support real-time student collaboration and inquiry: a 4-year design study

Instructional Science

8. Self-regulation of secondary school students: self-assessments are inaccurate and insufficiently used for learning-task selection

- The researchers propose a model for self-regulated learning-task selection (SRLTS) which represents a possible pathway for the task-selection process, and which students could use as a norm when making task selections. This model is adapted from Zimmerman's self-regulated learning model (Zimmerman 2002; Zimmerman and Campillo 2003) and Van Merrie ¨ nboer and Kirschner's (2013) model for dynamic task selection.
- The model could help students to decide what possible new tasks might be suitable for their current skill level, based on self-assessments. The aim of this study is to evaluate to what extent secondary school students select learning tasks according to this model, and whether they use self-assessments to this end. Secondary school students (N = 15) selected learning tasks in the domain of genetics from a structured task database. The tasks varied in difficulty and amount of support provided (i.e., completion problems vs. traditional problems).
- The researchers used eye tracking, performance estimates, estimates of mental effort, judgments of learning, and open questions to gain more insight in what students focus on and think about when selecting a task. Results suggest that students roughly follow the SRLTS model, but they base their decisions on inaccurate self-assessments.

TechTrends

1. Using Math Apps for Improving Student Learning: An Exploratory Study in an Inclusive Fourth Grade Classroom
2. Using Student Self-Ratings to Assess the Alignment of Instructional Design Competencies and Courses in a Graduate Program
3. Teaching and Learning with Mobile Computing Devices: Case Study in K-12 Classrooms
4. Let's Get Physical: K-12 Students Using Wearable Devices to Obtain and Learn About Data from Physical Activities
5. Flip or Flop: Are Math Teachers Using Khan Academy as Envisioned by Sal Khan?
6. Teaching Technology Integration to K-12 Educators: A 'Gamified' Approach
7. The Neglected BR^: Improving Writing Instruction Through iPad Apps
8. Exploring Flipboard to Support Coursework: Student Beliefs, Attitudes, Engagement, and Device Choice

TechTrends

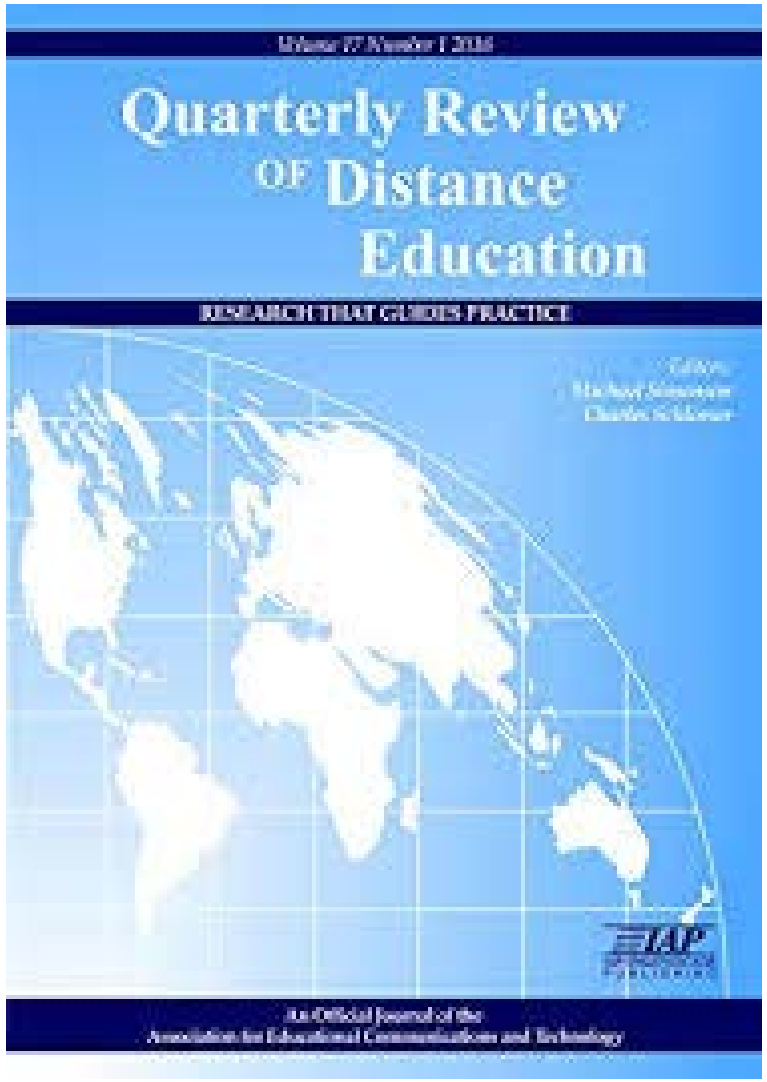
6. Teaching Technology Integration to K-12 Educators: A ‘Gamified’ Approach
   - Games can be powerful tools in teaching and learning. Several researchers have suggested that incorporating off-the-shelf video games can improve student learning and motivation (Dickey 2006; Malone 1981; Rieber 1996), and there is some evidence supporting those claims (Ke 2008).
   - the Learning, Design, and Technology program at The University of Georgia redesigned a core course in our Master’s degree program around several principles of gaming. The course, called, Introduction to ComputerBased Education, is taught entirely online and introduces K-12 teachers and school library media specialists to a variety of learning technologies.
   - The purpose of this paper is to present the course design and evaluative data associated with the learning experiences of practicing teachers engaged in a gamified approach to a graduate level course on technology integration.

TechTrends

7. The Neglected BR^: Improving Writing Instruction Through iPad Apps
   - In this study the authors investigated the effects of integrating iPad applications into writing instruction for fifth grade students. The participants were an intact class of 5th graders from a suburban school in the mountain west region of the United States.
   - By comparing the writing of students taught with paper and pencil methods with that of students utilizing the iPad writing applications, two research questions guided the study: (1) Are there differences in student writing, especially in visualizing, sequencing, or incorporating sensory details, depending on whether they used iPad apps or paper and pencil? (2) What are, if any, the influences of iPad apps on student's attitude, behavior, or social relations during the writing instruction?
   - The results demonstrated that the students with iPad apps wrote more cohesive, sequential stories using more sensory details than those with paper and pencil. iPad apps also had an impact on motivation to write and changed the classroom dynamics as iPad apps made the writing process more social and engaging.

Quarterly Review of Distance Education

1. Revisiting teacher preparation Responding to Technology Transience in the Educational Setting
2. Second life as a third place for English language learners' cross-cultural interaction
3. Students’ perceptions of online courses the effect of online course experience
4. Discovering utilization patterns in an online k--12 teacher professional development platform: clustering and data visualization methods



Instructional Science

1. Engaging elementary students in learning science: an analysis of classroom dialogue
   - This article analysed how one beginning middle primary teacher engaged with students to support their science learning by establishing rich classroom discussions. In constructivist-oriented classrooms, teachers support students to participate in activities where knowledge is situated and acquired by engaging in the discourses and social practices of communities (Mason 2007). Although constructivist approaches premised on active student engagement have been critiqued by advocates of direct instruction (e.g., Klahr 2009; Sweller et al. 2007), policies universally endorse implementation of strategies that by constructivist learning theories.
   - This study examined the developing pedagogical strategies through the communicative approaches adopted by a career-change beginning teacher, Pat, who has substantial subject matter knowledge in science, technology, engineering and mathematics (STEM).

Instructional Science

2. The effectiveness of volition support (VoS) in promoting students' effort regulation and performance in an online mathematics course

- The purposes of this study were to investigate (a) the effects of volition support (VoS) on students' motivation, effort regulation, and performance as well as (b) the perceptions of students about VoS in an online mathematics course offered at a community college. Why community college? Statistics indicates 2/3 of the students fail to graduate in a community college. Volition can help.
- in this study, we (a) implemented volition support (VoS) in a mathematics course offered online at a community college, and (b) examined the effects of the support on students' motivation, effort regulation, and performance as well as their perceptions of the support.
- The key features in the VoS: (a) four stage strategies, (b) a virtual change agent (VCA), (c) scenarios, and (d) interface. The researchers used We employed a concurrent triangulation mixed methods design in this study (Creswell 2009) to use both quantitative and qualitative data.

Instructional Science

3. Demonstration-based training (DBT) in the design of a video tutorial for software training
   - The article starts with the needs for instructional videos, and then talks about the theoretical framework. The basis for DBT is Bandura's (1986) theory of observational learning. Observational learning hinges on the interrelated processes of attention, retention, production, and motivation (Bandura 1986). Sampling was chosen from Ten participants from the highest grade-level classroom of an elementary school in Germany. Forty-five participants came from the first and second grade classrooms of a secondary school in Germany. The mean age of the 24 male and 31 female participants was 11.4 years (range 8.7–13.9).
   - Participants were randomly assigned to the control or experimental condition, after stratification for school and classroom. All instructional materials, including the software, were in German. the present study shows that the DBT-based video tutorials substantially contributed to learning and motivation, and that the additional presence of a review further added to these effects.
   - The outcomes warrant reasonable optimism regarding the effectiveness of DBT-based video tutorials with reviews for software training. A limitation of the present study is the absence of process data. Future research on the effectiveness of video tutorials for software training will need to get a better view of how the design features affect learning.

Instructional Science

4. Preservice teachers' use of contrasting cases in mathematics instruction
   - Drawing comparisons between students' alternative solution strategies to a single mathematics problem is a powerful yet challenging instructional practice.
   - The researchers aimed to first understand whether these preservice teacher candidates as a group tended to make comparisons where multiple, different student solutions were available, or preferentially taught a problem without engaging in comparing the solutions at all.
   - Second, the researchers sought to understand how often these candidates who did make comparisons also used pedagogical cues to support those comparisons, such as linking gestures, visual representations, and spatial alignment.
   - Finally, we sought to understand whether participants' mathematical content knowledge related to their propensity to use contrasting cases and support those comparisons.

Instructional Science

9. Varying effects of subgoal labeled expository text in programming, chemistry, and statistics
   - This study uses an instructional design technique that had previously improved learners' problem solving performance in programming: subgoal labeled expository text and subgoal labeled worked examples.
   - It intended to replicate this effect for solving problems in statistics and chemistry. However, each of the experiments in the three domains had a different pattern of results for problem solving performance.
   - While the subgoal labeled worked example consistently improved performance, the subgoal labeled expository text, which interacted with subgoal labeled worked examples in programming, had an additive effect with subgoal labeled worked examples in chemistry and no effect in statistics.
   - Differences in patterns of results are believed to be due to complexity of the content to be learned, especially in terms of mapping problem solving procedures to solving problems, and the familiarity of tools used to solve problems in the domain.
   - Subgoal labeled expository text was effective only when students learned more complex content and used unfamiliar problem solving tools.

Instructional Science

10. The value of fixed versus faded self-regulatory scaffolds on fourth graders' mathematical problem solving

- Although research has indicated that students can be taught self-regulated learning (SRL) in scaffolding programs focusing on a fixed continuous practice (e.g., metacognitive question prompts).
- However, the fading role of scaffolding to prepare autonomous learning is often an overlooked component. A unique approach for fading is suggested that offers a graduated reduction model of scaffolding prompts according to the SRL phases involved in the solution, which allows assimilation of processes to prepare learners for autonomous activity.
- This quasi-experimental study of fourth-graders (n = 134) examines the effectiveness of metacognitive self-question prompts in a Fixed (continuous) versus Faded (graduated reduction) scaffolds model during planning, monitoring and reflection phases, on the facilitation of students' SRL (metacognition, calibration of confidence judgment, motivation), and sense making of mathematical problem solving at the end of the program (short-term effect) and 3 months later (long-term/lasting effect). Findings indicated that the Faded Group performed best in the metacognition knowledge aspect, motivation in the performance goal approach increased and, in the avoidance, goal decreased.
- No differences were found between the groups on the regulation aspect and calibration of confidence judgment in the solution success. Additionally, the Faded Group outperformed the Fixed Group on sense making of problem solving. These findings were manifested particularly in the long-term effect. The study supports theoretical claims relating the role of fading scaffolds to increase students' autonomous SRL (metacognition, motivation) and improvements in sense making, particularly on the long-term retention effect.

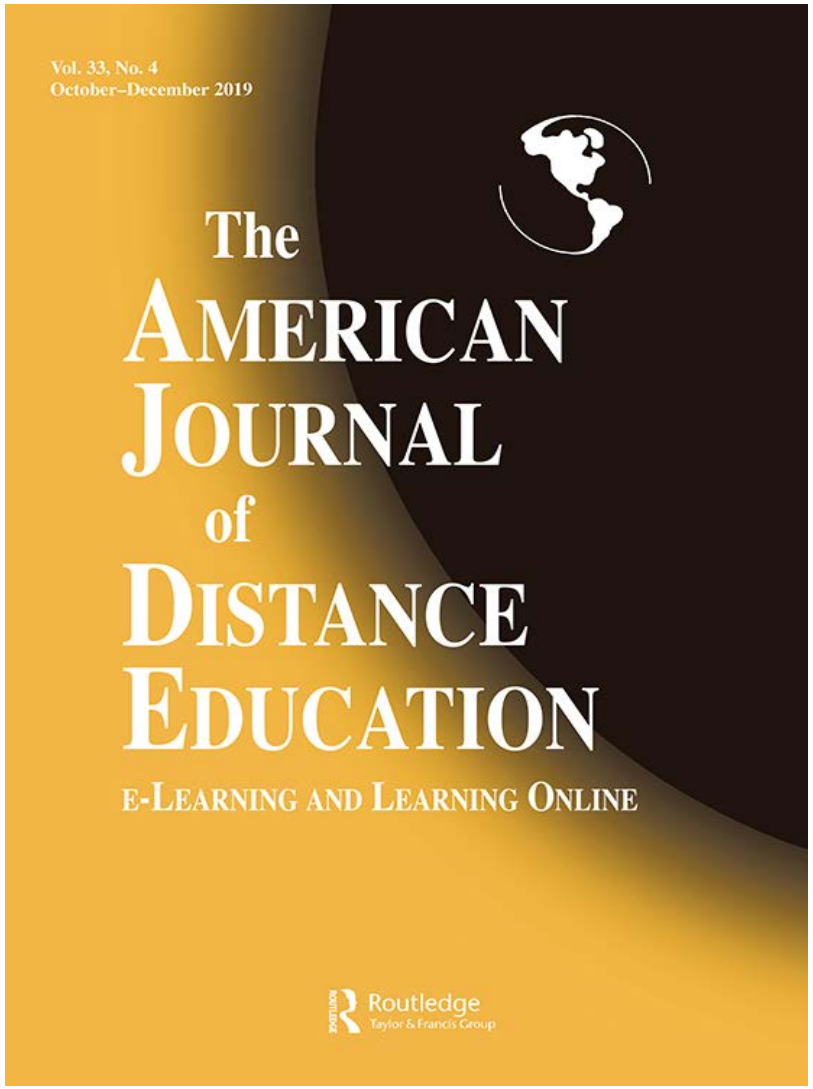
Instructional Science

11. Fostering creative performance in art and design education via self-regulated learning

- It is widely acknowledged that humanity has entered an innovation age, where individual and societal creativity are increasingly important (Trilling and Fadel 2009). As a result, there have been calls for schools to educate students for creativity (OECD 2013). As the researchers reviewed these previously identified themes, the researchers realized that these professors were engaged in pedagogical practices that aligned with several tenets of research and theory on self-regulated learning (SRL; Zimmerman 2013). SRL involves the active pursuit of desired learning goals via planning, monitoring, controlling, and reflecting upon various aspects of the learning process, including cognition, motivation, emotions, behavior, and context; and research has shown that SRL predicts numerous academic and learning outcomes (Greene 2018; Winne 2001; Zimmerman 2013). However, there is a need for more research on the role of SRL during higher-order processing, including creative performance, in ill-structured tasks or domains (Powers 2017; Schunk and Greene 2018).
- Thus, in this study, the research question was: In what ways did professors in professional schools of art and design use practices that could foster SRL? We were interested in the ways these professors' pedagogical practices helped to build students' SRL knowledge, skills, and dispositions in the pursuit of creative performance. Given the lack of research on SRL in schools of art and design, and the qualitative nature of our data, we chose to use thematic analysis to understand how Sawyer's (2018) themes revealed SRL in the art and design pedagogical context. This inductive approach is ideally suited for studying new phenomena or contexts, where theory must be generated rather than used in a deductive manner to derive hypotheses for testing (Levitt et al. 2018). The findings revealed insights into how professors fostered SRL in an ill-structured domain (i.e., art and design education), with interesting directions for future research on models of SRL.

The American Journal of Distance Education

1. Self-Regulated Learning and a Sense of Achievement in MOOCs Among High School Science and Technology Students
2. The Influence of Motivational Regulation Strategies on Online Students' Behavioral, Emotional, and Cognitive Engagement
3. Responsibilities of Online Teachers and On-Site Facilitators in Online High School Courses



1 Self-Regulated Learning and a Sense of Achievement in MOOCs Among High School Science and Technology Students

- This study, conducted in Israel, examined how learning strategies and motivational orientations contributed to high school students' sense of achievement in a massive open online course.
- Structural Equation Modeling path analysis results suggested that projects-based learning subjects had a significant positive impact on motivational orientations and learning strategies, and they in turn had a significant positive impact on students' sense of achievement.
- This study is based on self-regulated learning and explores whether the use of motivational orientations and learning strategies increases a student's chances of developing a higher sense of achievement in an academic MOOC.
- The research hypotheses were tested using the motivated strategies for learning questionnaire (MSLQ) built by Pintrich et al. (1991, 1993) and was later further developed by Duncan and McKeachie (2005). In addition to the MSLQ questionnaire, a scale for academic MOOC sense of achievement was calculated based on social pedagogy as a leading principle in the current learning model.

Review of Papers Related to My Research Field

In the past two weeks, I am working on the papers that are related to teachers' and students' perceptions in K-12 educational settings of using technology tools or platforms or any papers that are related to self-regulated learning. There are not too many papers focusing on K-12, so I enlarge my scope and read the papers that investigate students and teachers' perceptions in these journals. Here is what I found.

Performance Improvement Quarterly:

Like our professor mentioned last time, all papers are the interdisciplinary field of performance improvement (PI) and human performance technology through the publication of scholarly works including literature reviews, experimental studies, survey research, and case studies. The environment includes business, workplace, universities, organizations, medical services, workplace, air force, conglomerate, African community, marketplace and so forth. No papers are related to my research interest.

TechTrends:

1 Using Math Apps for Improving Student Learning: An Exploratory Study in an Inclusive Fourth Grade Classroom

The students used three math apps that employed different scaffolding strategies to support learning of decimals and multiplication. Pre- and post-tests showed that use of the math apps improved student learning in mathematics and reduced the achievement gap between struggling students and typical students. More studies should be conducted to identify effective math apps.

Research questions: Can selected math apps improve student learning of math, particularly for struggling students?

The t-test indicated a significant improvement from the pre-test to the post-test of Assessment 1 ($t(16) = 3.872$, $p < .01$), after using the Splash Math app for 40 minutes. The mean score went up from 12.4 out of 20 in the pre-test to 16.9 in the post-test.

2 Using Student Self-Ratings to Assess the Alignment of Instructional Design Competencies and Courses in a Graduate Program

This research examined students' self-reported proficiency in Instructional Design (ID) competencies using IBSTPI and AECT standards in order to assess the extent to which these standards are integrated in a university's graduate ID program. Data were collected from a convenience sample of 34 students who completed Advanced Instructional Design Portfolio, a one-credit capstone course designed to prompt students to reflect on their achievement of program goals and objectives.

Research questions are about how students in a graduate ID program perceive their proficiency in ID standards defined by AECT and IBSTPI; To what extent AECT standards and IBSTPI competencies addressed by the course in the ID program as perceived by students. The

researchers used the data from a one-credit capstone required course and collect the data from participants enrolled in the graduate ID program of a large mid-Atlantic University. The participants included 23 females and 11 males, ranging in age from 31 - 40. Students were required to rate their proficiency using one of two sets of ID standards or competencies described below. The findings of this research have been valuable in helping the program faculty identify curriculum gaps. The results of this study show that student self-rating of proficiency on professional field competencies can facilitate student reflection and serve as a basis for assessing the professional relevance of degree programs. the program faculty developed a new course that will address the Business of Learning Technologies and the application of related skills to managing the instructional design function in an organization.

3 Teaching and Learning with Mobile Computing Devices: Case Study in K-12 Classrooms

This descriptive study followed a case study design (Merriam, 1998). The research methods described here were conducted as part of an introductory doctoral research course in Fall 2011, where novice student researchers collaboratively designed, carried out, analyzed, and reported the research guided by the primary researcher and course instructor. The participants in this study were K-12 teachers who either taught using MCDs or who had students using MCDs.

The research questions for this study were: 1. In what ways are K-12 teachers using MCDs? 2. What supports are teachers receiving when using MCDs? 3. What barriers exist for teachers when using MCDs?

The participants were selected using criterion sampling (Miles & Huberman, 1994), where the primary criterion was teachers or students who were using MCDs, such as cellphones, smartphones, or tablet computers for teaching or learning. Because the use of MCDs was a recent trend in K-12 schools, we purposefully chose to delimit our research from the previous research on laptop computers and netbooks (see Fleischer, 2012; Hew & Brush, 2007). Secondly, we employed a maximum variation strategy (Miles & Huberman, 1994) in order to have diversity of gender, geographic regions, public and private schools, subject areas, and who primarily was using the devices (i.e., teachers or students). Using the participant identification methods described below, we sought out teachers and contexts that were varied.

This study sought to understand how teachers were integrating MCDs into their classrooms, these data could only have been obtained through the participants' knowledge. Therefore, interviews were the primary method for data collection. A semi-structured interview Theme analysis

4 Let's Get Physical: K-12 Students Using Wearable Devices to Obtain and Learn About Data from Physical Activities

The paper presents two examples of our efforts to balance athletic activities as a context for meeting our primary instructional goal—for students to become more adept with interpreting displays of data. The first example comes from a study we ran with high school students using Garmin Forerunner heart rate monitors. In this study, two groups of high school students participated in a series of physical activities (e.g., Frisbee, basketball) and then were asked to interpret displays of their heart rate data.

In Quantified Recess, we designed a competitive activity in which the participating students wore Fitbit Ultra activity trackers to record how active they had been during midday recess. These particular wearable trackers, which have become increasingly popular as consumer devices, combine an embedded three-axis accelerometer and altimeter to determine activity levels

each minute of the day. Over the course of a week, the students in this activity would review their recorded recess activity data and discuss strategies for increasing their activity levels.

5 Flip or Flop: Are Math Teachers Using Khan Academy as Envisioned by Sal Khan?

The case study to examine how Khan Academy was used as a tool for instruction in middle and high school mathematics classrooms. Five participates reported that the use of KA conflicted with Khan's vision of how his program should be used and with widely accepted effective teaching strategies.

6 Teaching Technology Integration to K-12 Educators: A 'Gamified' Approach

Games can be powerful tools in teaching and learning. Several researchers have suggested that incorporating off-the-shelf video games can improve student learning and motivation (Dickey 2006; Malone 1981; Rieber 1996), and there is some evidence supporting those claims (Ke 2008). the Learning, Design, and Technology program at The University of Georgia redesigned a core course in our Master's degree program around several principles of gaming. The course, called, Introduction to ComputerBased Education, is taught entirely online and introduces K-12 teachers and school library media specialists to a variety of learning technologies. The purpose of this paper is to present the course design and evaluative data associated with the learning experiences of practicing teachers engaged in a gamified approach to a graduate level course on technology integration. Twenty-two teachers across three offerings of the course completed a survey examining their experience with the gamified course and course elements. Survey mean scores were positive overall. Participants reported they were motivated by the gaming principles incorporated into the course, including the use of badges and awards and the opportunity to tailor course experience to their own interests. Participant responses to open-ended items similarly revealed that recognition and autonomy were important aspects of their learning experience. Implications for the theory and design of a gamified course within teacher education are discussed. Limitations are also mentioned in the end. On the one hand, limited evaluative data that supports the efficacy of those elements in many ways, it would be difficult to generalize from a small sample of convenience to a larger population of teachers. On the other hand, rich case studies to engage in considering strategies for integrating technology or providing opportunities to plan or teach with in-service teachers.

7 The Neglected BR^: Improving Writing Instruction Through iPad Apps

In this study the authors investigated the effects of integrating iPad applications into writing instruction for fifth grade students. The participants were an intact class of 5th graders from a suburban school in the mountain west region of the United States. To accommodate large class sizes, the students at the research site follow an 'early-late' model whereby classes are divided into two separate groups or tracks where one arrives earlier than the other but are also dismissed earlier thus lessening the time a teacher has the full group of students. Each track has a heterogeneous mix of both gender and academic abilities, and the school names the early arrivers as Track A students, while the late leavers as Track B students. Each track is formed largely by parental preference, and each track consists typically of 15 students on average.

By comparing the writing of students taught with paper and pencil methods with that of students utilizing the iPad writing applications, two research questions guided the study: (1) Are there differences in student writing, especially in visualizing, sequencing, or incorporating sensory details, depending on whether they used iPad apps or paper and pencil? (2) What are, if any, the influences of iPad apps on student's attitude, behavior, or social relations during the writing instruction? The results demonstrated that the students with iPad apps wrote more cohesive, sequential stories using more sensory details than those with paper and pencil. iPad apps also had

an impact on motivation to write and changed the classroom dynamics as iPad apps made the writing process more social and engaging.

8 Exploring Flipboard to Support Coursework: Student Beliefs, Attitudes, Engagement, and Device Choice

This study used a survey design to explore the use of a mobile application called Flipboard, which facilitates the curation of digital content into a magazine-like product, to engage students in class discussion and participation in a college course. Research questions include: (1) What were students' beliefs and attitudes regarding the use of Flipboard in the learning environment? (2) How engaged were students in the activity? (3) How did device choice affect student activity in the Flipboard assignment?

Research participants (N = 122)were students from four face-to-face sections of a graduate-level accounting information systems course (2013–2014), all taught by the same instructor, at a large southeastern university in the United States. A survey revealed that most students found the assignment useful and relevant to their learning and read more articles because the magazine as class-created. Device choice did not affect how many articles students contributed, but those primarily using mobile devices read significantly more articles than those using the computer. Implications and recommendations are shared to practitioners. The study results suggest instructor implications about technologies that are available on multiple devices and allow for student curation. It is a good first start to understanding how students are using devices and apps, and how instructors can encourage the use of devices to benefit student active learning of concepts. In this class, the instructor held in-class discussion activities to help students connect the Flipboard articles with the course concepts. The limitations are as follows: First, it is purely exploratory. Data was collected in one course at one university in the United States, taught by one instructor. Second, the app was only used in one way. However, Future research includes building upon this exploratory study; primarily comparing the use of Flipboard against another type of technology such as a wiki to determine the true effectiveness of the app. Collecting additional data about student performance will also clarify the nature of learning that occurs.

9 Computational Thinking for All: Pedagogical Approaches to Embedding 21st Century Problem Solving in K-12 Classrooms

Computational thinking (CT) offers an encompassing approach that exposes students to computing ideas and principles in the context of the subject areas they are already learning. Wing (2006) argued that computational thinking involves three key constructs: Algorithms, Abstraction, and Automation - the three A's of CT. The researchers discussed how these ideas are related to current educational reforms, such as Common Core and Next Generation Science Standards and provide specific means that would allow teachers to embed these ideas in their K-12 classrooms, including recommendations for instructional technologists and professional development experts for infusing computational thinking into other subjects.

10 The Use of Self-Regulated Learning Measure Questionnaires as a Predictor of Academic Success

This study examined the potential of utilizing the Motivated Strategies for Learning Questionnaire (MSLQ) and the Online Strategies for Learning Questionnaire (OSLQ) as instruments in predicting academic success as measured by overall grade point average (GPA). These instruments were of particular interest because the MSLQ was designed to measure student motivation and the OSLQ was designed to include self-regulated learning within a distance learning environment. Participants of the study were 134 graduate students recruited from a large, urban university in the southeast region of the United States. Participants provided general

demographic information and completed one survey that was composed of 81 questions from the MSLQ and 24 questions from the OSLQ. Results indicated that neither instrument was shown to be a more accurate predictor of academic success as measured by overall GPA. Results also indicated that independent variables such as age, gender, graduate status, department, and campus had no significant impact on either MSLQ or OSLQ scores.

RQ 1: Do students who score higher on self-regulated strategy measures obtain a higher overall grade point average than those with lower scores? RQ 2: Are the Motivated Strategies for Learning Questionnaire and the Online Strategies for Learning Questionnaire equally accurate predictors of academic performance of distance students as measured by overall grade point average? This study used a cross-sectional survey design to assess whether the MSLQ and OSLQ surveys were equal predictors of academic performance among graduate students in a distance learning environment attending an urban university in the southeast region of the United States. The 81 items from the MSLQ and the 24 items from the OSLQ were combined into one online survey instrument, with the MSLQ items appearing first, followed by the OSLQ items. Items representing the MSLQ were divided into two subsections: Motivation and Learning Strategies.

11 Augmented Reality in the K-12 Classroom

Augmented reality (AR) is the interaction of overlaid audio, graphics, text, and other virtual elements on a real-world environment displayed in real-time. Augmented reality is differentiated from virtual reality by the individual having information integrated into the individual's real-world rather than through an immersive, simulated environment.

The researchers have observed Aurasma used in various ways in K-12 classrooms such as interactive word walls, diagram labeling, interactive stories and reports, and teacher explanations of centers and assignments.

Quarterly Review of Distance Education

1 *REVISITING TEACHER PREPARATION Responding to Technology Transience in the Educational Setting*

This article presents frameworks used to assist in the development of effective technology-based instruction, including instruction developed in a highly technologically transient setting. The article then explores strategies teacher educators may use to help shift the mindset, resources, and approaches surrounding technology-based instruction to better help preservice teachers effectively manage and integrate technology into their teaching.

"Technology transience" refers to the rapid proliferation of technology tools, the frequent update of such tools, and their ever-shortening lifespans. Keeping up with such technology changes creates an ever-increasing demand on both a user's personal resources (i.e., time, energy, intellectual capacity, and emotions, etc.) and on a program's resources (i.e., money, support, infrastructure, etc.)

This paper describes two models (1) the Technology Integration Matrix (TIM) (Florida Center for Instructional Technology, 2015a), and (2) the Technological, Pedagogical, and Content Knowledge framework (TPACK) (Koehler, Mishra, Akcaoglu, & Rosenberg, 2013). incorporating TPACK with the Technology Integration Matrix, the Technology Fluency and The researchers provide suggestions about how integration model provides a useful framework to develop strategies to support technology implementation, thereby helping mitigate the impact of technology transience on teacher candidates.

2 Second life as a third place for English language learners' cross-cultural interaction

This study explores how English language learners perceive cross-cultural interaction within planned, virtual exchange sessions. This attempt is new and it is related how learners can

use a new technology. Learners are turning to three-dimensional virtual environments like Second Life. In addition to text and voice communication, virtual environments provide rich, immersive, visual experiences. They foster communication, reduce symbol systems required to discuss cultural objects, and enhance language learning.

Avatars is mentioned in this article, allowing users to mask certain traits and explore alternative roles and identities. Filtered appearances provide perceived anonymity and may reduce social inhibitions common in face-to-face interactions. In an attempt to provide interactive opportunities for Saudi students, the researchers developed a space in Second Life for native English speakers and Saudi students to congregate, interact, and share cultural experiences. Using principles of third place theory (Oldenburg,1989), researchers designed a traditional Saudi tearoom (see Figure 1). Seating was arranged in a circular position around a

table with a teapot, cups, and food items to foster communication. Open spaces allowed for object placement (e.g., musical instruments, holiday decorations, sports equipment) to facilitate conversation. Slideshows, flags, and images were displayed on the walls. This space allowed Saudi and native English participants to congregate for hosted, voluntary, hour-long exchanges that were independent of school and university programs. This qualitative study required Saudi participants wrote a journal entry regarding their experiences and completed a face-to-face or telephone interview. Results were discussed including gaining cultural knowledge and clarifying misconceptions.

3 STUDENTS' PERCEPTIONS OF ONLINE COURSES The Effect of Online Course Experience

The study attempts to address this shortcoming by exploring the students' perception of online courses while comparing perceptions of those who have taken online courses and those who have not.

This paper helps me review the history of distance education.

Correspondence courses, which rely on communication between course instructors and enrolled students via mail, are recognized as the first organized method of distance education. Although it has been noted that correspondence education first came into practice in Europe (Valentine, 2002), correspondence courses had beginnings in the United States in Boston and Chicago in the late 1800s (Gaytan, 2007; Nasseh, 1997). The courses were viewed as an excellent way of affording college-level education to residents of remote populations, and females who were primary caretakers within the home (Nasseh, 1997; Paolucci & Gambescia, 2007).

After the conclusion of World War II, television instruction became commonplace in course delivery. Cable television became a common mode of course delivery for television-based correspondence courses in the late 1970s and early 1980s.

The use of the Internet in course delivery was slow to take hold in the mid 1990s, but in a relatively short time, the medium of online delivery has, in large part, replaced the methods described above. The researchers used different variables to see the significant differences between the students who enrolled in face-to-face classes and online classes. The results are positive.

4 DISCOVERING UTILIZATION PATTERNS IN AN ONLINE K--12 TEACHER PROFESSIONAL DEVELOPMENT PLATFORM: Clustering and Data Visualization Methods

This article describes an analysis of utilization patterns of resources and site features in 1 online professional development platform for K-12 teachers in the state of Missouri in the United States. The EdHub Library is an online PD platform for K--12 teachers and school administrators maintained by the College of Education at the University of Missouri—Columbia.

Similar large online PD platforms exist, such as PE Central and MyTeachingPartner. PE Central is an online professional development platform for physical education teachers. With 162,000 visitors, PE Central provides lesson plans, best practices, classroom management, use of technology, and assessment ideas (Hanson, Pennington, Prusak, & Wilkinson, 2017). MyTeachingPartner is another example of online self-paced resources where teachers have access to three types of resources that aim to improve teacher-student interactions: a video library of best practices of teacher-student interactions, a college course, and individualized web-mediated coaching sessions (MyTeachingPartner, 2017).

The purpose of this study is to discover the utilization patterns of the content and site features of a K--12 online professional development platform. By data mining web metrics records from Google Analytics (GA), this study allows a comprehensive examination of the patterns between new and returning visitors by applying the simple k-means algorithm and visualizing natural groupings or cluster outputs (Jain, 2010). the free version of Google Analytics was used to extract 13 variables (page, user type, browser, city, page depth, day of the week, new users, users, sessions, bounce rate, session duration, pageviews, and time on page).

Instructional Science

1 Engaging elementary students in learning science: an analysis of classroom dialogue

This article analysed how one beginning middle primary teacher engaged with students to support their science learning by establishing rich classroom discussions. In constructivist-oriented classrooms, teachers support students to participate in activities where knowledge is situated and acquired by engaging in the discourses and social practices of communities (Mason 2007). Although constructivist approaches premised on active student engagement have been critiqued by advocates of direct instruction (e.g., Klahr 2009; Sweller et al. 2007), policies universally endorse implementation of strategies that by constructivist learning theories.

This study examined the developing pedagogical strategies through the communicative approaches adopted by a career-change beginning teacher, Pat, who has substantial subject matter knowledge in science, technology, engineering and mathematics (STEM).

The study sought to answer the following question: What communicative approaches, practices and strategies characterise **the teaching approaches** adopted by a beginning teacher highly qualified in a knowledge domain of STEM?

This single embedded explanatory case study (Yin 2009) reported here was undertaken as part of a larger longitudinal study of career-change beginning teachers each with a background career in some aspect of STEM. This paper reports the instructional practices of Pat, a career change teacher whose background was in applied human movement studies and in educational technology. Pat commenced his teaching career with a Year 5 (*9 year-olds) class in a metropolitan primary school before transferring voluntarily in his third year to a small remote country school, where he taught a Year 4 class. There were four data collection events over the three years of the study, (1) an initial 10–15 min telephone interview to obtain demographic and relevant personal

data undertaken after two months teaching in the first year of the study, (2) at six months in this year the participant was interviewed using a semi-structured interview protocol adapted from the literature (Luft and Roehrig 2007; Richardson and Simmons 1994), and (3) a follow-up day-long session conducted approximately three weeks after the participant had completed videotaping six of his lessons. McGregor's model was useful to assess the general characteristics that depicted Pat's teaching.

The researcher documented six sessions and the conversations with the students. conclusions are based on co-analysis of data and negotiation of meaning, on longevity in contact with the participant (over three years), maintaining an audit trail, sharing our initial interpretations.

2 The effectiveness of volition support (VoS) in promoting students' effort regulation and performance in an online mathematics course

The purposes of this study were to investigate (a) the effects of volition support (VoS) on students' motivation, effort regulation, and performance as well as (b) the perceptions of students about VoS in an online mathematics course offered at a community college. Why community college? Statistics indicates 2/3 of the students fail to graduate in a community college. Volition can help. in this study, we (a) implemented volition support (VoS) in a mathematics course offered online at a community college, and (b) examined the effects of the support on students' motivation, effort regulation, and performance as well as their perceptions of the support.

The key features in the VoS: (a) four stage strategies, (b) a virtual change agent (VCA), (c) scenarios, and (d) interface. The researchers used We employed a concurrent triangulation mixed methods design in this study (Creswell 2009) to use both quantitative and qualitative data.
The participants were students enrolled in an online mathematics course called, Foundation of Numbers and Operations. The course was offered at a community college located in the southeastern United States. In Spring 2012, 24 students were recruited from the course. In Fall 2012, 22 students were recruited from the course. The Spring semester students participated in the experimental group and the Fall semester students participated in the comparison group. In both semesters, the course was taught by the same instructor and had the same surveys and assignments which data were collected from. Limitations and implications are also mentioned

3 Demonstration-based training (DBT) in the design of a video tutorial for software training

The article starts with the needs for instructional videos, and then talks about the theoretical framework. The basis for DBT is Bandura's (1986) theory of observational learning. Observational learning hinges on the interrelated processes of attention, retention, production, and motivation (Bandura 1986). Sampling was chosen from Ten participants from the highest grade-level classroom of an elementary school in Germany. Forty-five participants came from the first and second grade classrooms of a secondary school in Germany. The mean age of the 24 male and 31 female participants was 11.4 years (range 8.7–13.9). Participants were randomly assigned to the control or experimental condition, after stratification for school and classroom. All instructional materials, including the software, were in German. the present study shows that the DBT-based video tutorials substantially contributed to learning and motivation, and that the additional presence of a review further added to these effects. The outcomes warrant reasonable optimism regarding the effectiveness of DBT-based video tutorials with reviews for software training. A limitation of the present study is the absence of process data. Future research on the effectiveness of video tutorials for software training will need to get a better view of how the design features affect learning.

4 Preservice teachers' use of contrasting cases in mathematics instruction

Drawing comparisons between students' alternative solution strategies to a single mathematics problem is a powerful yet challenging instructional practice. The researchers aimed to first understand whether these preservice teacher candidates as a group tended to make comparisons where multiple, different student solutions were available, or preferentially taught a problem without engaging in comparing the solutions at all. Second, the researchers sought to understand how often these candidates who did make comparisons also used pedagogical cues to support those comparisons, such as linking gestures, visual representations, and spatial alignment. Finally, we sought to understand whether participants' mathematical content knowledge related to their propensity to use contrasting cases and support those comparisons.

5 Peer feedback mediates the impact of self-regulation procedures on strategy use and reading comprehension in reciprocal teaching groups

In a cluster randomized trial, students in 12 fifth-grade classes practiced a strategic approach to reading either in a RT condition or in a RT ? SRL condition. In one of the 14 sessions, students' interactive behavior was videotaped. Strategy use and reading comprehension were assessed at pretest, posttest, and maintenance. Performance differences between conditions were reliable only at maintenance. A multilevel mediation analysis showed that relative to RT students, RT ? SRL students were better able to provide their teammates with informative feedback and organize their group work in a task-focused manner. Only feedback quality mediated the sustainability of treatment effects on strategy use and reading comprehension. In essence, this research suggests that effective reading comprehension trainings should integrate explicit instruction and practice in reading strategies, SRL, and focus on supportive peer processes in small groups with extensive instruction and practice in peer feedback.

The research was built on the expectations that (a) teamwork quality and peer feedback are critical components of the RT method, (b) these group processes determine the success of an intervention with regard to their promotive influence on students' strategic reading and reading comprehension, and (c) the integration of self-regulatory procedures increases the quality of teamwork and feedback in whole-class settings. As for the treatment conditions, all instructions were delivered by two trained research assistants (the first and the third author of this paper) in 14 regular language lessons, each lasting 45 min. The intervention phase covered eight weeks with two lessons per week. In both conditions, training started with an introductory phase (Lesson 1 to 3), in which the instructor modeled the use of the four target strategies (clarifying, summarizing, questioning, and predicting), and continued with a group-work phase (Lesson 4 to 14) throughout which the team members jointly practiced the use of these target strategies with expository texts.

All analyses following were performed with data of the two intervention conditions only using the Mplus (Version 7) software package (Muthe´n and Muthe´n 1998–2015). Self-regulated learning methods are an effective means for teachers and instructors to scaffold small group activities in whole-class literacy instruction. Furthermore, the positive influence of adequate peer feedback on students' strategic reading competence and their reading comprehension is an important finding for future research.

6 Effects of a rubric for mathematical reasoning on teaching and learning in primary school

This quasi-experimental study aimed to evaluate whether rubrics help teachers teach and assess mathematical reasoning in primary school and whether such an instrument might support student learning. In two Swiss cantons, 762 students in 44 5th- and 6th-grade primary classes worked on their reasoning competencies, and half of them additionally employed our standards-based rubric. All of the teachers received a 1-day training and participated in

the final project evaluation. To standardise and support the teachers during the implementation phase, they received a detailed curriculum. An achievement test and questionnaires for students and teachers were administered before and at the end of the intervention. The results of our quantitative longitudinal analyses indicate that the rubric fosters the teachers' perceived diagnostic skills but only indirectly impacts their use of formative feedback. The research adds to the understanding of how rubrics support student learning by following a research model with mediating variables oriented according to a theoretical model developed by Panadero and Jonsson (2013).

The researchers employed questionnaires, one for the teacher and one for the students. In each of the two measurements, a bundle of items was repeatedly used, complemented by items appropriate only for a single time point.

7 Charting the routes to revision: An interplay of writing goals, peer comments, and self-reflections from peer reviews

Two studies within the context of a class using: (1) an online peer review system, which collects peer comments and revisions; (2) a new electronic tool that captures insights by the reviewer during the review process; and (3) a writing assignment that explicitly asked students to note their writing goals. Building upon self-regulated learning theories, the researchers examined the nature of student writing goals and the relationship of these writing goals to revision alone and in combination with two other important sources of students' self-regulated revision—peer comments on their writing, and reflections for their own writing obtained from reviewing others' writing. Data were obtained from a large introductory undergraduate class in the context of two 1000-word writing assignments involving online peer review and a required revision. The researchers began with an investigation of students' free response learning goals and a follow-up quantitative survey about the nature and structure of these writing goals. The research indicated : (a) students tended to create high-level substantive goals more often, (b) students change their writing goals across papers even for a very similar assignment, and (c) their writing goals divide into three dimensions: general writing goals, genre writinggoals, and assignment goals. The researchers then closely coded and analyzed the relative levels of association of revision changes with writing goals, peer comments, reflections from peer review, and combinations of these sources. Findings suggest that high-level revisions are commonly associated with writing goals, are especially likely to occur for combinations of the three sources, and peer comments alone appeared to make the largest contributions to revision.

8 Self-regulation of secondary school students: self-assessments are inaccurate and insufficiently used for learning-task selection

The researchers propose a model for self-regulated learning-task selection (SRLTS) which represents a possible pathway for the task-selection process, and which students could use as a norm when making task selections. This model is adapted from Zimmerman's self-regulated learning model (Zimmerman 2002; Zimmerman and Campillo 2003) and Van Merrie¨nboer and Kirschner's (2013) model for dynamic task selection. The model could help students to decide what possible new tasks might be suitable for their current skill level, based on self-assessments. The aim of this study is to evaluate to what extent secondary school students select learning tasks according to this model, and whether they use self-assessments to this end. Secondary school students (N = 15) selected learning tasks in the domain of genetics from a structured task database. The tasks varied in difficulty and amount of support provided (i.e., completion problems vs. traditional problems). The researchers used eye tracking, performance estimates, estimates of mental effort, judgments of learning, and open questions to gain more insight in what students

focus on and think about when selecting a task. Results suggest that students roughly follow the SRLTS model, but they base their decisions on inaccurate self-assessments. This implies that students might benefit from self-assessment and task-selection advice, which could provide feedback on self-assessments and stimulate students to use self-assessment information as input for task selection in the way the model prescribes to optimize their learning.

9 Varying effects of subgoal labeled expository text in programming, chemistry, and statistics

This study uses an instructional design technique that had previously improved learners' problem solving performance in programming: subgoal labeled expository text and subgoal labeled worked examples. It intended to replicate this effect for solving problems in statistics and chemistry. However, each of the experiments in the three domains had a different pattern of results for problem solving performance. While the subgoal labeled worked example consistently improved performance, the subgoal labeled expository text, which interacted with subgoal labeled worked examples in programming, had an additive effect with subgoal labeled worked examples in chemistry and no effect in statistics. Differences in patterns of results are believed to be due to complexity of the content to be learned, especially in terms of mapping problem solving procedures to solving problems, and the familiarity of tools used to solve problems in the domain. Subgoal labeled expository text was effective only when students learned more complex content and used unfamiliar problem solving tools.

10 The value of fixed versus faded self-regulatory scaffolds on fourth graders' mathematical problem solving

Although research has indicated that students can be taught self-regulated learning (SRL) in scaffolding programs focusing on a fixed continuous practice (e.g., metacognitive question prompts). However, the fading role of scaffolding to prepare autonomous learning is often an overlooked component. A unique approach for fading is suggested that offers a graduated reduction model of scaffolding prompts according to the SRL phases involved in the solution, which allows assimilation of processes to prepare learners for autonomous activity. This quasi-experimental study of fourth-graders (n = 134) examines the effectiveness of metacognitive self-question prompts in a Fixed (continuous) versus Faded (graduated reduction) scaffolds model during planning, monitoring and reflection phases, on the facilitation of students' SRL (metacognition, calibration of confidence judgment, motivation), and sense making of mathematical problem solving at the end of the program (short-term effect) and 3 months later (long-term/lasting effect). Findings indicated that the Faded Group performed best in the metacognition knowledge aspect, motivation in the performance goal approach increased and, in the avoidance, goal decreased. No differences were found between the groups on the regulation aspect and calibration of confidence judgment in the solution success. Additionally, the Faded Group outperformed the Fixed Group on sense making of problem solving. These findings were manifested particularly in the long-term effect. The study supports theoretical claims relating the role of fading scaffolds to increase students' autonomous SRL (metacognition, motivation) and improvements in sense making, particularly on the long-term retention effect.

11 Fostering creative performance in art and design education via self-regulated learning

It is widely acknowledged that humanity has entered an innovation age, where individual and societal creativity are increasingly important (Trilling and Fadel 2009). As a result, there have been calls for schools to educate students for creativity (OECD 2013). As the researchers reviewed these previously identified themes, the researchers realized that these professors were engaged in pedagogical practices that aligned with several tenets of research and theory on self-regulated

learning (SRL; Zimmerman 2013). SRL involves the active pursuit of desired learning goals via planning, monitoring, controlling, and reflecting upon various aspects of the learning process, including cognition, motivation, emotions, behavior, and context; and research has shown that SRL predicts numerous academic and learning outcomes (Greene 2018; Winne 2001; Zimmerman 2013). However, there is a need for more research on the role of SRL during higher-order processing, including creative performance, in ill-structured tasks or domains (Powers 2017; Schunk and Greene 2018). Thus, in this study, the research question was: In what ways did professors in professional schools of art and design use practices that could foster SRL? We were interested in the ways these professors' pedagogical practices helped to build students' SRL knowledge, skills, and dispositions in the pursuit of creative performance. Given the lack of research on SRL in schools of art and design, and the qualitative nature of our data, we chose to use thematic analysis to understand how Sawyer's (2018) themes revealed SRL in the art and design pedagogical context. This inductive approach is ideally suited for studying new phenomena or contexts, where theory must be generated rather than used in a deductive manner to derive hypotheses for testing (Levitt et al. 2018). The findings revealed insights into how professors fostered SRL in an ill-structured domain (i.e., art and design education), with interesting directions for future research on models of SRL.

12 Developing a smart classroom infrastructure to support real-time student collaboration and inquiry: a 4-year design study

If educators wish to engage students in the kinds of collaborative and inquiry-based practices that characterize this twenty first century knowledge society, we must reconsider the physical environment of the classroom as something more than a neutral lecture room. The ways in which we design our learning spaces and the ways in which students interact with peers, tools and information within these spaces will directly influence the kinds of learning interactions that occur. Scardamalia and Bereiter (2006) have argued that learning environments should be crafted to reflect their underlying pedagogical and epistemic goals. The researchers extend this notion to guide our design of a smart classroom environment and corresponding inquiry curriculum.

The research was conducted by a multi-disciplinary design team including educational researchers, a high school physics teacher, and technology designers. The researchers embarked on a series of design-based research projects to investigate a smart classroom infrastructure that scaffolds students and teachers in new forms of collaboration and inquiry, including a substantive role for large projected displays and small touch surfaces, as well as a dependency on students' physical location within the room. This paper describes our designs, including: (1) the role of large displays for communicating aggregate and ambient information, (2) the role of real-time communication between students, (3) the application of intelligent software agents to enact real-time pedagogical logic, (4) support for learning across contexts, and (5) orchestration of inquiry roles, materials and environments. These designs are particularly relevant for the Learning Sciences community, as they offer insight into how the orchestrated classroom can support new forms of collaborative, cooperative and collective inquiry. One important outcome of this work is a set of design principles for supporting smart classroom research.

The American Journal of Distance Education

1 Self-Regulated Learning and a Sense of Achievement in MOOCs Among High School Science and Technology Students

This study, conducted in Israel, examined how learning strategies and motivational orientations contributed to high school students' sense of achievement in a massive open online

course. The objective was to integrate an innovative teaching–learning strategy into the educational system that is based on online learning for students in subjects that are rich in knowledge and technology. The researchers used a motivated strategies learning questionnaire modified to fit the purpose of this study. In addition, the researchers built and used a sense of achievement index based on social pedagogy as a leading principle in the current learning model. Structural Equation Modeling path analysis results suggested that projects-based learning subjects had a significant positive impact on motivational orientations and learning strategies, and they in turn had a significant positive impact on students' sense of achievement.

This study is based on self-regulated learning and explores whether the use of motivational orientations and learning strategies increases a student's chances of developing a higher sense of achievement in an academic MOOC. Zutshi, O'Hare, and Rodafinos (2013) found that motivation to participate in a MOOC is associated with the following: (1) a will to explore and evaluate the course paradigm and the learning experience (motivational factor for teachers, virtual course designers, and learning technology experts); (2) a will to evolve, to broaden professional knowledge and expertise; and (3) a will to receive academic course credit.

The research hypotheses were tested using the motivated strategies for learning questionnaire (MSLQ) built by Pintrich et al. (1991, 1993) and was later further developed by Duncan and McKeachie (2005). In addition to the MSLQ questionnaire, a scale for academic MOOC sense of achievement was calculated based on social pedagogy as a leading principle in the current learning model.

2 The Influence of Motivational Regulation Strategies on Online Students' Behavioral, Emotional, and Cognitive Engagement

Providing effective motivational support is a critical determinant of a successful online distance learning experience for students in higher education. In this study, the researchers examined how students' academic level and use of 8 motivational regulation strategies influence 3 types of student engagement: behavioral engagement, emotional engagement, and cognitive engagement. A total of 95 undergraduate and graduate students enrolled in online courses in 4-year universities in the United States participated in this study. A series of hierarchical regression analyses of undergraduate and graduate online students ($N = 95$) showed that behavioral engagement, emotional engagement, and cognitive engagement are predicted by different motivational regulation strategies after controlling for the academic level. Additionally, students' academic level was found to be a predictor of cognitive engagement but not a predictor of behavioral engagement or emotional engagement. The results suggest that online course instructors, tutors, and designers should provide students with differentiated motivational scaffolding based on their motivational profile in order to promote different aspects of learning engagement.

3 Responsibilities of Online Teachers and On-Site Facilitators in Online High School Courses

Local schools are increasingly providing their students who are enrolled in an online course with an on-site facilitator as a means for increasing online pass rates. However, few studies have examined how online teachers and on-site facilitators work in conjunction to support online students. Successful on-site facilitators (n = 12) and online teachers (n = 12) participated in two one-hour interviews. Analysis found that while both the teachers and the facilitators assumed extensive and complex roles, their responsibilities were overlapping but complementary. Although the facilitators were highly engaged in supporting students, online teachers found the quality of support provided by facilitators varied greatly across schools. Eleven of the facilitators required

the majority of their students to attend a daily lab that allowed them more easily and effectively fulfill their responsibilities. Findings from this research also support the need to provide facilitators with professional development so that they can better assume their critical responsibilities.