

Grabarski, Mirit K., Mouratidou, Maria and Fellows, Ian (2023) The evolution of learning and technological innovation: preparing students for successful careers. In: Donald, William E., (ed.) Handbook of research on sustainable career ecosystems for university students and graduates. IGI Global, Hershey, PA, US, pp. 58-76.

Downloaded from: <http://insight.cumbria.ac.uk/id/eprint/7160/>

Usage of any items from the University of Cumbria's institutional repository 'Insight' must conform to the following fair usage guidelines.

Any item and its associated metadata held in the University of Cumbria's institutional repository Insight (unless stated otherwise on the metadata record) may be copied, displayed or performed, and stored in line with the JISC fair dealing guidelines (available [here](#)) for educational and not-for-profit activities

provided that

- the authors, title and full bibliographic details of the item are cited clearly when any part of the work is referred to verbally or in the written form
 - a hyperlink/URL to the original Insight record of that item is included in any citations of the work
- the content is not changed in any way
- all files required for usage of the item are kept together with the main item file.

You may not

- sell any part of an item
- refer to any part of an item without citation
- amend any item or contextualise it in a way that will impugn the creator's reputation
- remove or alter the copyright statement on an item.

The full policy can be found [here](#).

Alternatively contact the University of Cumbria Repository Editor by emailing insight@cumbria.ac.uk.

Handbook of Research on Sustainable Career Ecosystems for University Students and Graduates

William E. Donald

University of Southampton, UK & Ronin Institute, USA

A volume in the Advances in Higher Education
and Professional Development (AHEPD) Book
Series



Published in the United States of America by
IGI Global
Information Science Reference (an imprint of IGI Global)
701 E. Chocolate Avenue
Hershey PA, USA 17033
Tel: 717-533-8845
Fax: 717-533-8661
E-mail: cust@igi-global.com
Web site: <http://www.igi-global.com>

Copyright © 2023 by IGI Global. All rights reserved. No part of this publication may be reproduced, stored or distributed in any form or by any means, electronic or mechanical, including photocopying, without written permission from the publisher. Product or company names used in this set are for identification purposes only. Inclusion of the names of the products or companies does not indicate a claim of ownership by IGI Global of the trademark or registered trademark.

Library of Congress Cataloging-in-Publication Data

Names: Donald, William (William Edward), 1987- editor.

Title: Handbook of research on sustainable career ecosystems for university students and graduates / edited by William Donald.

Description: Hershey PA : Information Science Reference, [2023] | Includes bibliographical references. | Summary: "This Edited Collection aims to draw together the fragmented fields of Vocational Behavior and Human Resource Management in the context of early-career talent. The book will be a contemporary resource capturing the current state of the landscape and making suggestions for what opportunities and challenges may lie ahead. Each chapter will either represent an emerging area of interest within the Vocational Behaviour or Human Resource Management Research - or represent an area where the COVID-19 pandemic as a global chance event has raised new challenges and opportunities. 4. The book will impact current research by providing a consolidated view of establishing and maintaining sustainable career ecosystems, providing an essential reference text on which future research agendas and practitioner strategies can be built. The linking of previously fragmented aspects of the literature can also stimulate new ways of thinking. The book differs from others like it because it is narrow in focus (early career talent and the transition from education into the labour market) - whilst being broad in coverage of topics related to this area to provide a rich understanding of the opportunities for establishing and maintaining sustainable career ecosystems"-- Provided by publisher.

Identifiers: LCCN 2022061146 (print) | LCCN 2022061147 (ebook) | ISBN 9781668474426 (hardcover) | ISBN 9781668474464 (paperback) | ISBN 9781668474433 (ebook)

Subjects: LCSH: College graduates--Employment. | Employability. | Human capital. | Career education. | School-to-work transition. | Counseling in higher education.

Classification: LCC HD6277 .E883 2023 (print) | LCC HD6277 (ebook) | DDC 331.11/445--dc23/eng/20230224

LC record available at <https://lccn.loc.gov/2022061146>

LC ebook record available at <https://lccn.loc.gov/2022061147>

This book is published in the IGI Global book series Advances in Higher Education and Professional Development (AHEPD) (ISSN: 2327-6983; eISSN: 2327-6991)

British Cataloguing in Publication Data

A Cataloguing in Publication record for this book is available from the British Library.

All work contributed to this book is new, previously-unpublished material. The views expressed in this book are those of the authors, but not necessarily of the publisher.

For electronic access to this publication, please contact: eresources@igi-global.com.

Chapter 4

The Evolution of Learning and Technological Innovation: Preparing Students for Successful Careers

Mirit K. Grabarski

Lakehead University, Canada

Maria Mouratidou

University of Cumbria, UK

Ian Fellows

 <https://orcid.org/0000-0002-6754-3160>

Newman University, UK

ABSTRACT

The chapter describes the major guiding learning theories and paradigms, and summarizes classic and recent instruction methodologies while exploring technology's impact on learning. An interesting finding is that while methods for teaching children differed from adult ones in the past, current approaches to adult learning adopt methodologies that were developed for children, such as gamification, to make learning feasible, consistent, engaging, and motivating. The chapter also reports on the findings of a case study within a UK university setting employing the flipped classroom approach. The chapter concludes by connecting learning to career sustainability in ecosystems and providing practice recommendations.

INTRODUCTION

Careers are commonly defined as evolving sequences of work experiences (Arthur et al., 1989). In the last few decades, careers have changed and have become more agentic and boundaryless, which implies constant adaptation that the individual initiates. Adapting to changing environments, navigating between jobs and mastering new technologies and skills are essential to achieve employability in today's career environment (Donald et al., 2017). In order to keep up with changes and to adapt successfully, learning

DOI: 10.4018/978-1-6684-7442-6.ch004

The Evolution of Learning and Technological Innovation

is a key factor for career sustainability, which is essential to achieve productive, satisfactory, and healthy careers in a volatile labor market (Donald et al., 2020). For individuals, career sustainability is closely associated with staying employable and learning, including developing competencies (Akkermans et al., 2013). Because working and sustaining a career in the modern world requires different capabilities and knowledge than before, current approaches to career management imply continuous learning throughout one's career. Moreover, as careers are not limited to a single workplace, it is important to acknowledge the interdependence and interaction of various individuals and organizations. Therefore, careers can be seen as dynamic ecosystems, which operate at various levels, ensuring a flow of human capital where talent is created and reshaped in organizations (Baruch, 2015; 2023). This notion also impacts our understanding of learning as a process that can happen inside and outside organizations, and its outputs also become inputs in a complex dynamic.

Due to the ongoing and widespread societal changes, the role of the learning environment has evolved from being a place of instruction to a place to create new knowledge. While the definition of learning has not changed, its purpose, philosophies and methodologies have changed dramatically. In the past, the goal of learning was preserving and transmitting existing information. The cheapest and most efficient method has been the traditional face-to-face lecture to support this goal. The instructor is an authority who teaches multiple students directly and didactically in the classroom. While learning theories have evolved based on newly developed knowledge of psychological principles, helping make learning more efficient, they were intended for the old paradigm of obtaining knowledge from experts. A significant shift happened with the acceleration of technology, which changed society and the type of learning it entails. Moreover, while education is sometimes perceived as oriented towards children, learning processes continue to occur in adulthood as part of higher education and professional training, which became especially salient with the development of modern career theories. Focusing on transferable skills development and flexibility rather than memorizing facts is key to the survival and sustainability of the individual and society (Gold & Smith, 2003). Thus, the purpose of learning has changed. With it, new methodologies have emerged, for example, gamification, flipped learning, and social learning, which have been introduced to motivate learners to communicate with each other and to produce new knowledge.

This chapter will explore how learning has evolved, beginning with an overview of the major learning theories that have traditionally shaped learning, followed by a discussion about new ways of learning and the impact of technology on knowledge creation. The chapter will discuss a practical case of implementing flipped learning in a university setting, bridging theory and practice. We will conclude by looking at how learning impacts the sustainability of careers and propose implications for practice.

LEARNING THEORIES AND THEIR PARADIGMS

Learning is traditionally defined as “the process of acquiring knowledge and skills, and a change in individual behavior as a result of some experience” (Saks & Haccoun, 2018, p. 42) or as “a change of state of the human being that is remembered and that makes possible a corresponding change in the individual's behavior in a given type of situation” (Gagne, 1948, p. 377).

The organized form of education as we know it has historically served children of aristocratic families, who could afford the tuition fees of private institutions, and/or existed in religious organizations that prepared young men for the priesthood. Access to formal educational organizations was considered a privilege where lower social classes could obtain basic knowledge orally from older generations and

later could learn a trade on the job. For example, through apprenticeship, artisans (e.g., blacksmiths or tailors) sometimes employed young men and women as an affordable form of labor in exchange for training and food (Morgan, 2001). Public free education became widely available in the 18th century as a response to political and technological changes requiring new skills.

To a large extent, these early school systems employed an educational model based on several assumptions. The first assumption is that learners do not know their own learning needs and rely on the educator. Therefore, the teacher's role was to decide how and what will be learned, and the role of the learner was to comply with the teacher's instructions (Bedi, 2004; Knowles et al., 2005). It was also believed that the learners' experience is irrelevant; therefore, the educator does not have to consider it. Moreover, learners were treated as objects rather than subjects in the learning environment (Nadkarni, 2003). The assumption that learning needs to be subject-centered led to developing a subject-related curriculum rather than interdisciplinary. Finally, it was assumed that the motivation to learn is extrinsic rather than intrinsic (Knowles et al., 1998). Different philosophical approaches later challenged these assumptions or paradigms developed to foster effective learning.

Paradigms are grounded in their respective epistemologies, or the study of the origin, nature, limits and methods of knowledge (Schunk, 2012). Each paradigm adopts specific learning theories that provide a framework for educators' teaching methods to guide learners' thinking during the learning process. As a result, different theories explain how learning happens, these theories are distinguished by their beliefs about various aspects of learning, such as environmental conditions, knowledge acquisition, and mental processing. As the science of learning and how humans acquire and create knowledge advances, learning theories evolve too. The demands of current economic development, technological advancement, and job creation also affect how knowledge and information are passed on from educator to student and student to student (Bates, 2015; Gordon et al., 2012). In the next section, we will elaborate on the three most commonly used theories that impacted the design of modern learning environments: behaviorism, constructivism, and humanism (Shunk, 2012).

Initially developed by Skinner in the 1930s, behaviorism assumes that human behavior is observable and measurable and can be studied to explain learning phenomena. For behaviorism, knowledge is a collection of behavioral habits or responses to environmental stimuli (Berkeley, 2017). Learners exhibit knowledge via their behavior, such as applying the correct equation in a mathematical problem. Learners, whether humans or animals, start as a tabula rasa or clean slate, who respond to stimuli in the external environment and change their behavior accordingly. It is believed that researchers and educators can understand or measure learning by observing such behaviors (Leonard, 2002; Schunk, 2012). Thus, learning is considered a change in observable behavior, and the trainer can modify it by controlling the environment (Leonard, 2002). Since an environmental stimulus generates the behavioral response, the trainers can guide behaviors to occur more frequently when positively reinforced and less frequently when punished. Therefore, mental processes or cognitive phenomena are not necessary to explain learning, as in this paradigm, it is unrelated to behavioral responses (Schunk, 2012).

In the behavioristic paradigm, learning is passive. The learner absorbs information transmitted by educators without a critical evaluation by learners, as the educator provides the correct responses to specific stimuli. The relationship between stimulus and response has been successful when simple cognitive functions are needed, such as memory retrieval and knowledge application. Thus, for learning to occur, the learning objectives must be clear and used to frame the learning activities. Repetition is essential to gaining skills, and reinforcement is the driving force; therefore, rewards and successes are preferable and act as incentives. The learner is reinforced positively or negatively depending on their

The Evolution of Learning and Technological Innovation

response. Through repetition, educators hope to condition learners to produce the appropriate responses. However, behaviorism does not engage with why individuals do not respond to stimuli the same way or why individuals who experience the same teaching do not learn the same content similarly (Campbell et al., 2020; Delprato & Midgley, 1992; Tobias & Duffy, 2009; Ulman, 1998).

Another central learning paradigm is constructivism, the opposing school of thought to behaviorism. Rather than learning how to respond in desirable ways to specific stimuli, constructivism emphasizes the importance of social interaction, free will and consciousness in learning (Prince, 2014). The core idea of constructivism is that the learner constructs knowledge through previously acquired mental processes, not by repetition of information, i.e., rather than the expert transmitting knowledge, it is the learner who creates the knowledge. Learners are not seen as blank slates but as people who bring their prior knowledge to the learning process. They remain active by creating their own experiences, generating meaning, and altering their knowledge accordingly. If what learners experience does not fit their present understanding, this understanding is modified to accommodate the new experiences.

Learning environments in the constructivist paradigm focus on active engagement, where students construct new knowledge and skills effectively by interacting with peers and educators. The interaction helps learners make sense of their world, as learning is an individual and social process (Gibbs, 1998). These skills are imperative for learners as knowledge creation is part of the innovation process within the workplace (Schuh, 2003).

The third learning paradigm to be discussed here is humanism. This approach is rooted in humanistic psychology, which emphasizes the importance of self-esteem, self-development and motivation (Knowles et al., 1998). This approach to learning emphasizes personal growth and development rather than a mechanical change in behavior. As such, the learner is at the center of any educational endeavors, where the essential learning goals are about developing the individual and, consequently, the society (Gould, 2012). Thus, humanistic learning avoids teacher-directed learning because it sees knowledge as something that cannot be disseminated from person to person (Knowles, 1975). Instead, comprehension happens in a facilitative environment where the teacher becomes the facilitator, and the learner takes responsibility for learning and developing.

As the early educational model used for public schools with children did not assume that learners have prior knowledge and can be internally motivated, it was less suitable for use with adults in lifelong learning environments. Therefore, learning principles were initially developed to facilitate children and youth obtaining the knowledge needed modifications to be successfully applied to adult learning. Knowles (1968, 1980) proposed the term ‘andragogy’ to distinguish adult learning from pre-adult schooling (‘pedagogy’). Andragogy emphasizes that the learner is autonomous, self-directed, problem-oriented, and internally motivated (Knowles, 1975). While these principles may also apply to children, andragogy developed new assumptions about learning that led to the development of different teaching methods that require learners to be proactive, set objectives, conduct their learning activities, and evaluate their progress while enhancing self-awareness (Ekoto & Gaikwad, 2015). It is also important to mention that technological developments allowed important advances in teaching and learning, helping modify existing instructional methods to make learning more accessible, engaging and/or effective and enabling new methods.

TEACHING METHODOLOGIES

The classic and most popular approach to learning was the frontal **lecture**, which represents a behavioristic approach. The educator presents content to learners in a one-way interaction, which is particularly useful for simultaneously transferring a large volume of information to large groups of learners. This method was effective in preparing young professionals for future work in a consistent way, as they all receive the same information. Technology allowed organizing lectures and one-time workshops traditionally conducted live and in-person in a physical space to be transmitted over the internet to learners in different locations. This advancement significantly improved access to learning for people living in remote areas. Moreover, technology allows us to bridge not only space but time, as lectures can be recorded and viewed by the learners when it is more comfortable for them. This is particularly useful for people who need a more flexible schedule, whether as a personal preference to accommodate work schedules or family. While lectures are suitable for teaching descriptive knowledge, they are less effective for skills development, including critical thinking, problem-solving, adaptability and teamwork.

In order to engage learners more in the process and to support the development of skills such as critical thinking and communication, trainers started to incorporate **discussions**. Unlike the lecture, discussion creates two-way communication between the educator and the learners and between the learners themselves. Similarly to lectures, discussions can be held using technology – either during a live session over the internet (video conference) or using discussion boards where learners can create posts and respond to each other in their free time (Dang et al., 2016; Park et. al, 2019; So & Brush, 2008).

Another alternative to the lecture for acquiring theoretical knowledge is **flipped learning**. The students receive the content (i.e., completing assigned readings and/or watching a video) in their free time, usually before class. Classroom time is used for activities managed by the instructor, who moves from an expert role to a facilitator role. This method allows more creative use of classroom time, increasing engagement and communication (Donald & Ford, 2023). Therefore, in line with the constructivism paradigm, the role of the educator is to facilitate learning and encourage learners to be active and self-directed using methods such as problem-based, peer-assisted, scaffolding and experiential learning (Paavola et al., 2004; Pea, 2004; van de Pol et al., 2010)

A different approach to learning was created in business schools, notably Harvard. Because managers need practical knowledge and the ability to deal with complex workplace situations, providing them with descriptive and theoretical information is insufficient. Instead, the **case study method** was developed, when learners have to tackle a real-life situation, analyze it, identify potential sources of problems and potential solutions and apply theoretical knowledge in order to solve a practical issue that they themselves may face in the future as managers. This method allows the development of analytical skills, problem-solving, decision-making and communication (as cases are often solved in teams and require coordination and cooperation). Instead of focusing on introducing theoretical concepts, it starts with practical situations to which theories can be applied to find effective solutions, thus practicing the manager's role while technically being in a learning environment. In addition, because case studies are based on real companies and situations they faced, they are particularly engaging for learners as they are perceived as more relevant than theories and imaginary stories (Retana & Rodriguez-Lluesma, 2022; Schiano et al., 2014). While the case method usually prefers in-person learning, during the COVID-19 pandemic, instructors that used the method could continue to do so, as modern learning platforms include elements that support collaboration, teamwork and knowledge creation. These elements can include a

The Evolution of Learning and Technological Innovation

virtual blackboard, group work in breakout rooms, sharing documents, chatting and more (Dhawan, 2020; Lemay et al., 2021).

In addition to acquiring knowledge, it is important to provide students with opportunities to practice the newly acquired skills, which led to the rise of experiential learning. To this end, **role plays** allow to practice of new behaviors within a safe learning environment, i.e., without the risk associated with a real-life situation. In addition to creating a practical experience (for example, managing a difficult conversation), role-play includes an analytical component, or a debrief, where the learners reflect on their handling of the situation and identify what was more and/or less effective for them (Powell et al., 2020). Similarly, **simulations** allow the practice of behaviors in a controlled environment that imitates reality. It is useful when it is impossible to use the real environment for various reasons (for example, safety or practical considerations). For example, simulations are used for preparing pilots and firefighters, although they can also be helpful for other professionals (Grabowski, 2021).

Finally, to make the learning even more engaging, **gamification** can incorporate play elements into learning, for example, through creating competition, setting challenges, providing rewards for completing the challenges and allowing failure and repetition. Games, which were often seen as intended only for children, are helpful for adult learning as well, as they promote motivation, engagement, and enjoyment, and for this reason, have been adapted to different contexts such as education, the workplace and healthcare (Barata et al., 2017; Connolly et al., 2012; Ding et al., 2017; Ioannou, 2019; Huang et al., 2019; Perryer et al., 2016; Sardi et al., 2017; Vlachopoulos & Makri, 2017). There is evidence that games can be equally effective as traditional learning approaches in promoting knowledge attainment (Smetana & Bell, 2012; Vlachopoulos & Makri, 2017; Warren et al., 2016), as playfulness and problem-based learning lead to the development of learner self-efficacy which is essential for achieving learning goals (Gegenfurtner et al., 2014). In addition to increased engagement and participation, gamification also encourages critical thinking and stimulates creativity (Bai et al., 2020; Connolly et al., 2012; Ekici, 2021; Jarnac et al., 2020; Krath et al., 2021; Qian & Clark, 2016; Vlachopoulos & Makri, 2017), which contribute to the rise of its popularity. Gamification is also being embedded into the graduate recruitment process, suggesting that students who become familiar with gamification during their time at university have a higher chance of successfully navigating this aspect of the recruitment process (Donald et al., 2022; 2023).

Technology is successfully leveraged to enhance all these teaching methods. Today's students are comfortable with the world of video games and enjoy having them incorporated into other aspects of life. For example, video games are now standard in learning languages (De Grove et al., 2013); often considered less engaging content can be more easily acquired when offered as a video game (Armstrong & Landers, 2018). Even non-educational, commercial games can help students develop important employability skills such as teamwork and communication (Barr, 2017; 2018). It is important to acknowledge that to achieve specific learning goals, serious games must incorporate learning principles, such as appropriate feedback (Zhonggen, 2019).

In addition to adapting traditional learning methods, technology allowed the developing and advancing entirely new approaches to learning. For example, learners can go through a whole course independently, perhaps even without instruction. Courses can be created by a content expert once, including integrated assessments, and made available to learners. Online learning and computer-based teaching systems that use repetition, practice and feedback to reinforce learning also correspond with the behavioristic paradigm (Ting et al., 2019). Instructor support may or may not be available upon request. The learners are expected to direct themselves in achieving the learning goals, which fits well with career theories that focus on the need to be proactive and adaptable, such as the sustainable careers framework. In addition,

while technology provided opportunities for enhanced game-based learning by removing physical constraints and allowing better visuals and creative components similar to current video games, even more unique advances have been made with the introduction of virtual and augmented reality. Virtual reality is successfully used to help practice situations that are dangerous in real life, for example, violent events (Seinfeld et al., 2018; Slater et al., 2013), or in high-risk occupations such as healthcare (Mäkinen et al., 2022). As instructional games became more engaging, simulations became more realistic, creating a sense of total immersion and significantly improving the learning experience (Domínguez et al., 2013).

Finally, technology also impacted the learning process with the rise of social media, blogs and wikis. The constant sharing of information and communication between users online leads to the evolution of learning from transmission to co-creation of knowledge (Greenhow & Lewin, 2016; Selwyn & Stirling, 2016). In other words, not only that the internet made declarative knowledge widely accessible rather than controlled by a content expert, but it also created a world where everyone can generate their own knowledge and share it with others, discuss it and therefore engage with the learning environment in a completely new way. Social media can also promote social mobility in university students by providing educational content and career guidance in an accessible way (Donald & Scattergood, 2023).

These methods demonstrate gradual progress and change in the learning process and the role of the learner, from simple and passive to more complex and active. However, while the methods of learning discussed are different, they are all intended to help the learners engage in learning and co-create knowledge with their peers. Given that this book focuses on higher education, the next section of the chapter will report the findings of a case study conducted by the third author in a university setting using the flipped classroom method.

FLIPPED LEARNING CASE STUDY

Setting the Scene

This case study follows a foundation year program for students studying either Accounting and Finance or Business Management during the first semester of 2022-23 in a UK university. The subject cohorts are combined as students are given the option to enter either program upon successful completion of the foundation year. Foundation Year programs offer a path to a BA (Hons) degree to students who do not have the appropriate level of qualification for direct entry and, as such, tend to attract students who did not have a successful school experience or are returning to education as mature students. Most students entering higher education through a foundation year program are widening participation students (O'Sullivan et al., 2019) with additional barriers to academic success (Haque et al., 2020; Thomas, 2020).

This being the case, the program serves two purposes: 1) to ensure that students have requisite levels of subject-specific threshold knowledge when they join the degree program and 2) to enable the transition to higher education for students who tend to have lower levels of confidence, self-efficacy, and academic skills.

The flipped learning model of teaching subverts traditional norms of the tutor's role as a sage on the stage (King, 1993) and shifts the emphasis of face-to-face contact time to sense-making and the co-creation of knowledge (Burke & Fedorek, 2017).

I elected to utilize a flipped learning approach with this cohort for three reasons: firstly, if these students have not enjoyed a successful school experience, then continuing with a transference model

The Evolution of Learning and Technological Innovation

of teaching that situated the students as passive learners receiving instruction from the master seems unlikely to disrupt that trajectory (Minosky et al., 2022; Prince, 2004).

Secondly, the flipped method is intended to develop desirable student characteristics such as self-leadership and agentic thinking. It reinforces the teaching of the non-subject-specific foundation year modules, which seek to develop feelings of belonging and enhance students' academic identity (Sanders et al., 2016).

Finally, this flipped learning model allowed me to frame traditional seminars as 'meetings' in which students arrived as equal participants and shared notes in the form of minutes were kept. The program was a form of role-playing that introduced students to workplace communication norms and developed appropriate graduate skills such as active listening, negotiation, presentation, minute recording, and the chairing of meetings (Clokie & Fourie, 2016).

The program lasted for twelve weeks, with weekly sessions of two hours each. Sessions were structured according to a regular agenda which allowed for the election of a new Chair and Secretary for the meeting each week, a discussion of the pre-meeting activities which had been set, a specific task or activity for completion, and then a short 'any other business' wrap up. The activities included interactive sessions with featured guest speakers selected from recent alums as role models to deepen the students' understanding of real-world applications of learning and raise their aspirations.

One of the challenges for the foundation year educator is that students have often joined in search of subject-specific education and do not necessarily have the contextual understanding to value elements such as academic literacy development (Sanders et al., 2016). This may be especially true in a marketized higher education sector with an increased regulatory focus on universities offering students value for money (Raaper, 2018). To deliver sufficient subject-specific content for a mixed cohort that met the criteria of value for money, I wrote a program that was intended to give a foundational knowledge of business with specific references to the importance of accounting throughout and allowed for students to engage based upon their prior knowledge and real-world experiences, reaching them where they live. In the first week, we discussed Tuckman's Team Development Theory and how they would learn as a team. In the final week, students were invited to share the themes discussed in their final assignments (a summary of the learning that they considered most important). Between these bookends, we covered three general areas: the context in which businesses operate, business strategy and operational activities.

Attendance levels were consistent at around fifteen attendees per week (from twenty-four initially enrolled students), and participation in the sessions was sporadically good, with greater levels of confidence displayed by the students as the weeks progressed. Students would generally arrive prepared by doing the pre-session reading, though not necessarily prepared to speak about it.

Key Finding 1: Facilitate Wider Engagement

Student confidence naturally correlates with their willingness to contribute to a discussion, which can lead to the same voices dominating the conversation each week. To combat this, I assigned specific and different pre-reading to different students so they would each arrive with a piece of the puzzle to move our discussions forward. This is not a straightforward thing to do as it is time-intensive and relies upon predictable student attendance, or else the tutor must speak on behalf of the absent student with the effect that those observations will be endowed with a greater degree of importance by students who reify the tutor role. One mechanism to ameliorate these risks is to share the same pre-reading activity with

multiple students. However, this can reintroduce the possibility of students opting out of either the task or the dialogue if they are paired with a student whom they are confident can be relied upon to engage.

Key Finding 2: Encourage Debate

Facilitating an open and equalized tutor/student relationship confers upon the students an invitation to disagree with opinions offered by the tutor. While this requires confidence on the part of the student, this situation can be engineered by a tutor making outlandish or mildly provocative claims. Facilitating genuine disagreement between students in open dialogue and a team setting is much more challenging. Outside of specifically designed debates with students being given contradictory positions to defend, there was no word of disagreement between students until the eleventh week of the program. In tasks requiring students to form smaller sub-groups, anecdotal reporting suggests a greater willingness to ‘be wrong’ – was the difference in the group size or the absence of an ‘expert’ in the conversation? Debates between students not typically endowed with confidence in their academic identity and, perhaps, subject knowledge must be developed slowly and in conjunction with other academic skills.

Key Finding 3: Be Transparent

At the beginning of the first week, only one student had been in a formal meeting (with a chair and secretary) in a work environment; however, by week twelve, ten members of our group had chaired a meeting, and nine had taken formal notes. When asked again in week twelve, each student said they had experienced being in formal team meetings. However, one said they would be comfortable speaking about this in an interview with prospective employers.

During the following semester, the team will work separately in their subject-specific groups (the Tuckman model calls this team break-up process ‘adjourning’) with tutors, and I will see them again as separate subject-specific groups alongside direct entrants when they enroll on the entire degree program in the next academic year. It will be interesting to see how their utilization of pre-lecture learning skills and willingness to engage in dialogue has evolved.

This case study has discussed the findings of flipped classroom learning in a university setting. The flipped classroom method encouraged debate and empowered students to work and learn together. The following section will discuss the implications of these findings and provide conclusions.

CONCLUDING THOUGHTS: THE FUTURE OF LEARNING FOR SUCCESSFUL CAREERS

Each of the learning approaches discussed above has some application in adult education. For example, humanistic theory and constructivism favor problem-based learning and self-understanding, whereas behaviorism seems more promising when teaching practical skills. Despite their differences, there are several areas of agreement, including the importance of clear goals and objectives, the emphasis on the learning progression from simple to more complex, and an appreciation for the importance of reinforcement and feedback.

The case study presented in this chapter identified ways university teaching methods draw upon these learning theories. The flipped learning model allows learners to engage in the knowledge-creation process

The Evolution of Learning and Technological Innovation

(constructivism) actively and facilitates the learner's self-development and self-esteem (humanism). First, the model ensured that everyone was engaged: this helped build the self-confidence necessary for future career development. Second, students were encouraged to express disagreements and resolve conflicts, developing their critical thinking and communication skills. Third, the requirement to participate in formal meetings also helped students become more comfortable with future workplace situations. By encouraging the students to become autonomous, self-directed and self-aware, they move from a passive role to an active one, such that in addition to declarative knowledge acquisition, they were able to develop employability skills.

This is in line with the increased understanding that sustainable careers require that people develop transferable skills. However, the scope of these skills is expanding. Following earlier developments in learning theory, the role of learning in modern education is re-evaluated once again. While traditional learning approaches already incorporate some essential interpersonal skills, such as teamwork, there is a need to address new required skills and abilities, such as adaptability, flexibility and resilience. Amid the challenging contexts characterized by fast and dramatic changes, for example, financial crises, where labor markets are characterized by intense talent competition, or COVID-19, which changed whole segments of the world economy, careers are hard to sustain (Donald & Mouratidou, 2022). However, there are ways to develop and find ways to support one's career sustainability, and one significant way is via learning.

Specifically, for individuals to stay employable, they need to engage in lifelong learning. That means they must realize that learning is not limited to school, vocational, higher, or graduate-level education. Learning should become integral to their life, whether in or outside the workplace. Despite the differences in various career theories in describing the career experiences of individuals, there is a consensus that individuals are responsible for maintaining employability and committing to life-long learning (Donald et al., 2019), mainly by staying up-to-date and continuously developing competencies that are needed for careers in the present and the future (Akkermans et al., 2013). Taking responsibility for learning is essential for future career development, which requires individuals to take an active approach.

Educational institutions can support this change in the approach to learning. While many students enter higher education conditioned by their previous educational experiences to be passive recipients of their learning, today's higher education institutions allow students to take control of and responsibility for their learning to enhance their ability to learn from experience. For instance, in universities today, students are assigned to work in teams to develop the teamwork skills their potential future employers require. Often even if the formal team assignment focuses on other aspects of the task (for example, developing a business strategy), the more valuable learning outcome is the experience of working in a team, including dealing with challenging situations (Bedwell et al., 2014). In the case study, the second half of each flipped learning session required students to implement the knowledge they arrived with through flexible, asynchronous means and co-created with peers through dialogue by participating in activities. Similarly, learning environments can help students develop flexibility, deal with ambiguity and take responsibility for one's performance.

In order to achieve these goals, technology can be leveraged. In particular, remote learning was a significant breakthrough for the career sustainability of many people who previously could not attend in-class education (for example, people who work full time, people who are homebound for medical reasons, people who serve as caretakers, people who live in rural areas and more). The rise of online communication allowed people to start and/or continue learning beyond the socially acceptable period of young adulthood, which is expected but also more realistic due to technological advancement. As learning also became more skill-oriented, it included skills in using technology – which became an es-

sential workplace requirement. This suggests increased attention to working and collaborating remotely, self-directed work and more (Moorhouse & Wong, 2022). In the future, innovative technologies such as VR can enhance learning even more.

Moreover, it is important to consider learning in the broader context of the ecosystem. In the sustainable career framework, different actors are engaged in multiple exchanges: individuals may or may not be employed by organizations, but in any case, they operate in a labor market and are affected by other individuals, organizations and social institutions. These interactions can create and/or limit opportunities to attain career goals (Baruch & Rousseau, 2019). For example, personal relationships and social ties that people form during their careers can significantly impact their position in the labor market (Granovetter, 1995): acquaintances and friendships that people develop during university, through various work experiences, and volunteering/ military service can help obtain career-related information, help and support (Burt, 2001; Honig et al., 2006). Thus, the ecosystem can provide important resources for career development, and therefore we recommend strengthening this relationship between learners and the ecosystem before they graduate and enter the labor market. This can be done in various ways: for example, guest lecturers can be invited to class to share ideas and experiences, which will improve the learning process and make it more meaningful, expose students early to the industry, and help establish important connections. Similarly, learning projects where data collection in organizations outside the university is required can be designed to provide opportunities to interact with the ecosystem and develop the student's professional networks. Finally, practical placements (or co-ops) are an important component that contributes to finding employment after graduation and a deeper understanding of what careers entail, which will help them make good sense of the labor market and be better prepared for entering it.

Finally, we recommend that learning will not be limited to educational institutions but also promoted by employers. Given the focus of this volume on university students and graduates, we described methods used in higher education. However, it is important to note that much lifelong learning will happen in the workplace, where other methods are used. There is evidence for a negative relationship between jobs that promote learning and development, turnover and absenteeism, and a positive relationship between workplace productivity and engagement (Pfeffer, 2018). However, the learning that organizations initiate has also to be not limited to the passive acquisition of cognitive knowledge but create engagement on a holistic level, including thinking, feeling, perceiving and behaving, as well as acknowledging the synergy between the person and the environment (Kolb & Kolb, 2005). A valuable framework for this can be the learning mode model (Heslin et al., 2020), which refers to mindful engagement in learning goals. Experiential learning can be seen as a modern form of apprenticeship, learning by doing, which is critical for skills acquisition.

In this chapter, we provided a historical overview of the place of learning in sustaining careers and described the major guiding theories and paradigms. We summarized classic and recent instruction methodologies and explored the impact of technology on learning. An interesting trend that was identified is that while in the past, methods for teaching children eventually separated from teaching adults, current approaches to adult learning adopt a methodology that was developed for children, such as gamification, in order to make learning not only practically feasible and consistent but also engaging and motivating. We provided an example of a flipped learning case study that demonstrated the value of self-directed learning. Finally, we connected learning to career sustainability in ecosystems and provided practice recommendations.

FUNDING

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

REFERENCES

- Akkermans, J., Schaufeli, W. B., Brenninkmeijer, V., & Blonk, R. W. B. (2013). The role of career competencies in the Job Demands – Resources model. *Journal of Vocational Behavior*, 83(3), 356–366. doi:10.1016/j.jvb.2013.06.011
- Armstrong, M. B., & Landers, R. N. (2018). Gamification of employee training and development. *International Journal of Training and Development*, 22(2), 162–169. doi:10.1111/ijtd.12124
- Bai, S., Hew, K. F., & Huang, B. (2020). Does gamification improve student learning outcome? Evidence from a meta-analysis and synthesis of qualitative data in educational contexts. *Educational Research Review*, 30, 100322. doi:10.1016/j.edurev.2020.100322
- Barata, G., Gama, S., Jorge, J., & Gonçalves, D. (2017). Studying student differentiation in gamified education: A long-term study. *Computers in Human Behavior*, 71, 550–585. doi:10.1016/j.chb.2016.08.049
- Barr, M. (2017). Video games can develop graduate skills in higher education students: A randomised trial. *Computers & Education*, 113, 86–97. doi:10.1016/j.compedu.2017.05.016
- Barr, M. (2018). Student attitudes to games-based skills development: Learning from video games in higher education. *Computers in Human Behavior*, 80, 283–294. doi:10.1016/j.chb.2017.11.030
- Baruch, Y. (2015). Organizational and labor market as career eco-system. In A. De Vos & B. Van der Heijden (Eds.), *Handbook of Research on Sustainable Careers* (pp. 164–180). Edward Elgar. doi:10.4337/9781782547037.00029
- Baruch, Y., Ashleigh, M. J., & Donald, W. E. (2023). A sustainable career ecosystem perspective of talent flow and acquisition: The interface between higher education and industry. In W. E. Donald (Ed.), *Handbook of Research on Sustainable Career Ecosystems for University Students and Graduates*. IGI Global.
- Baruch, Y., & Rousseau, D. M. (2019). Integrating psychological contracts and their stakeholders in career studies and management. *The Academy of Management Annals*, 13(1), 84–111. doi:10.5465/annals.2016.0103
- Bedi, A. (2004). An andragogical approach to teaching styles. *Education for Primary Care*, 15, 93–108.
- Bedwell, W. L., Fiore, S. M., & Salas, E. (2014). Developing the future workforce: An approach for integrating interpersonal skills into the MBA classroom. *Academy of Management Learning & Education*, 13(2), 171–186. doi:10.5465/amle.2011.0138
- Bozkurt, A., & Durak, G. (2018). A systematic review of gamification research: In pursuit of homo ludens. [IJGBL]. *International Journal of Game-Based Learning*, 8(3), 15–33. doi:10.4018/IJGBL.2018070102

- Burke, A. S., & Fedorek, B. (2017). Does “flipping” promote engagement?: A comparison of a traditional, on-line, and flipped class. *Active Learning in Higher Education, 18*(1), 11–24. doi:10.1177/1469787417693487
- Burt, R. S. (2001). Attachment, decay, and social network. *Journal of Organizational Behavior, 22*(6), 619–643. doi:10.1002/job.106
- Campbell, A., Craig, T., & Collier-Reed, B. (2020). A framework for using learning theories to inform ‘growth mindset’ activities. *International Journal of Mathematical Education in Science and Technology, 51*(1), 26–43. doi:10.1080/0020739X.2018.1562118
- Clokie, T. L., & Fourie, E. (2016). Graduate Employability and Communication Competence: Are Undergraduates Taught Relevant Skills? *Business and Professional Communication Quarterly, 79*(4), 442–463. doi:10.1177/2329490616657635
- Connolly, T. M., Boyle, E. A., MacArthur, E., Hainey, T., & Boyle, J. M. (2012). A systematic literature review of empirical evidence on computer games and serious games. *Computers & Education, 59*(2), 661–686. doi:10.1016/j.compedu.2012.03.004
- Dang, Y. M., Zhang, Y. G., Ravindran, S., & Osmonbekov, T. (2016). Examining student satisfaction and gender differences in technology-supported, blended learning. *Journal of Information Systems Education, 27*(2), 119–130.
- De Grove, F., Van Looy, J., & Mechant, P. (2013). Learning to play, playing to learn: Comparing the experiences of adult foreign language learners with off-the-shelf and specialized games for learning German. *International Journal of Game-Based Learning, 3*(2), 22–35. doi:10.4018/ijgbl.2013040102
- Delprato, D. J., & Midgley, B. D. (1992). Some fundamentals of B. F. Skinner’s behaviorism. *The American Psychologist, 47*(11), 1507–1520. doi:10.1037/0003-066X.47.11.1507
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems, 49*(1), 5–22. doi:10.1177/0047239520934018
- Ding, L., Kim, C., & Orey, M. (2017). Studies of student engagement in gamified online discussions. *Computers & Education, 115*, 126–142. doi:10.1016/j.compedu.2017.06.016
- Domínguez, A., Saenz-de-Navarrete, J., De-Marcos, L., Fernández-Sanz, L., Pagés, C., & Martínez-Herráiz, J. J. (2013). Gamifying learning experiences: Practical implications and outcomes. *Computers & Education, 63*, 380–392. doi:10.1016/j.compedu.2012.12.020
- Donald, W. E., Ashleigh, M. J., & Baruch, Y. (2022). The university-to-work transition: Responses of universities and organizations to the COVID-19 pandemic. *Personnel Review, 51*(9), 2201–2221. doi:10.1108/PR-03-2021-0170
- Donald, W. E., Baruch, Y., & Ashleigh, M. J. (2017). Boundaryless and protean career orientation: A multitude of pathways to graduate employability. In M. Tomlinson & L. Holmes (Eds.), *Graduate Employability in Context: Theory, Research and Debate* (pp. 129–150). Palgrave Macmillan. doi:10.1057/978-1-137-57168-7_6

The Evolution of Learning and Technological Innovation

- Donald, W. E., Baruch, Y., & Ashleigh, M. J. (2019). The undergraduate self-perception of employability: Human capital, careers advice, and career ownership. *Studies in Higher Education, 44*(4), 599–614. doi:10.1080/03075079.2017.1387107
- Donald, W. E., Baruch, Y., & Ashleigh, M. J. (2020). Striving for sustainable graduate careers: Conceptualization via career ecosystems and the new psychological contract. *Career Development International, 25*(2), 90–110. doi:10.1108/CDI-03-2019-0079
- Donald, W. E., Baruch, Y., & Ashleigh, M. J. (2023). Technological transformation and human resource development of early career talent: Insights from accounting, banking, and finance. *Human Resource Development Quarterly*. Advance online publication. doi:10.1002/hrdq.21491
- Donald, W. E., & Ford, N. (2023). Fostering social mobility and employability: The case for peer learning. *Teaching in Higher Education, 28*(3), 672–678. doi:10.1080/13562517.2022.2145467
- Donald, W. E., & Mouratidou, M. (2022). Preparing for a sustainable career: Challenges and opportunities. *GiLE Journal of Skills Development, 2*(2), 3–5. doi:10.52398/gjdsd.2022.v2.i2.pp3-5
- Donald, W. E., & Scattergood, K. (2023). *Social Mobility via Social Media: Opportunities for Career Services*. Times Higher Education., doi:10.13140/RG2.2.34483.71204
- Ekici, M. (2021). A systematic review of the use of gamification in flipped learning. *Education and Information Technologies, 26*(3), 3327–3346. doi:10.1007/10639-020-10394-y
- Ekoto, C. E., & Gaikwad, P. (2015). The impact of andragogy on learning satisfaction of graduate students. *American Journal of Educational Research, 3*(11), 1378–1386. doi:10.12691/education-3-11-6
- Gagne, R. M. (1984). Learning outcomes and their effects: Useful categories of human performance. *The American Psychologist, 39*(4), 377–385. doi:10.1037/0003-066X.39.4.377
- Gegenfurtner, A., Quesada-Pallarès, C., & Knogler, M. (2014). Digital simulation-based training: A meta-analysis. *British Journal of Educational Technology, 45*(6), 1097–1114. doi:10.1111/bjet.12188
- Gibbs, G. (1998). *Learning by doing: a guide to teaching and learning methods*. Oxford Press.
- Gould, J. (2012). *Learning Theory and Classroom Practice in the Lifelong Learning Sector*. Sage (Atlanta, Ga.).
- Grabowski, A. (2021). Practical skills training in enclosure fires: An experimental study with cadets and firefighters using CAVE and HMD-based virtual training simulators. *Fire Safety Journal, 125*, 103440. doi:10.1016/j.firesaf.2021.103440
- Granovetter, M. (1995). *Getting a job: A study of contacts and careers*. University of Chicago Press. doi:10.7208/chicago/9780226518404.001.0001
- Greenhow, C., & Lewin, C. (2016). Social media and education: Reconceptualizing the boundaries of formal and informal learning. *Learning, Media and Technology, 41*(1), 6–30. doi:10.1080/17439884.2015.1064954
- Haque, E., Spencer, A., & Alldridge, L. (2021). Developing a UK widening participation forum. *The Clinical Teacher, 1–3*(5), 482–484. doi:10.1111/tct.13357 PMID:33956408

- Heslin, P. A., Keating, L. A., & Ashford, S. J. (2020). How being in learning mode may enable a sustainable career across the lifespan. *Journal of Vocational Behavior*, *117*, 103324. doi:10.1016/j.jvb.2019.103324
- Honig, B., Lerner, M., & Raban, Y. (2006). Social capital and the linkages of high-tech companies to the military defense system: Is there a signaling mechanism? *Small Business Economics*, *27*(4-5), 419–437. doi:10.1007/11187-005-5644-y
- Huang, B., Hew, K. F., & Lo, C. K. (2019). Investigating the effects of gamification-enhanced flipped learning on undergraduate students' behavioral and cognitive engagement. *Interactive Learning Environments*, *27*(8), 1106–1126. doi:10.1080/10494820.2018.1495653
- Ioannou, A. (2019). A model of gameful design for learning using interactive tabletops: Enactment and evaluation in the socio-emotional education classroom. *Educational Technology Research and Development*, *67*(2), 277–302. doi:10.1007/11423-018-9610-1
- Jarnac de Freitas, M., & Mira da Silva, M. (2020). Systematic literature review about gamification in MOOCs. *Open Learning*, 1–23. doi:10.1080/02680513.2020.1798221
- King, A. (1993). From Sage on the Stage to Guide on the Side. *College Teaching*, *41*(1), 30–35. doi:10.1080/87567555.1993.9926781
- Knowles, M. S. (1968). Andragogy, not pedagogy. *Adult Leadership*, *16*(10), 350–352.
- Knowles, M. S. (1975). *Self-Directed Learning: A Guide for Learners and Teachers*. Prentice Hall Regents.
- Knowles, M. S. (1980). *The Modern Practice of Adult Education: From Pedagogy to Andragogy*. New York, Cambridge.
- Knowles, M. S., Elwood, R., Holton, R. III, & Swanson, A. (1998). *The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development* (5th ed.). Heinemann.
- Knowles, M. S., Holton, E., & Swanson, R. (2005). *The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development* (6th ed.). Elsevier. doi:10.4324/9780080481913
- Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education*, *4*(2), 193–212. doi:10.5465/amle.2005.17268566
- Krath, J., Schürmann, L., & Von Korfflesch, H. F. (2021). Revealing the theoretical basis of gamification: A systematic review and analysis of theory in research on gamification, serious games and game-based learning. *Computers in Human Behavior*, *125*, 106963. doi:10.1016/j.chb.2021.106963
- Mäkinen, H., Haavisto, E., Havola, S., & Koivisto, J. M. (2022). User experiences of virtual reality technologies for healthcare in learning: An integrative review. *Behaviour & Information Technology*, *41*(1), 1–17. doi:10.1080/0144929X.2020.1788162
- Merriam, S. B. (2018). Adult learning theory: Evolution and future directions. In K. Illeris (Ed.), *Contemporary Theories of Learning* (pp. 83–96). Routledge. doi:10.4324/9781315147277-6

The Evolution of Learning and Technological Innovation

- Minosky, S. A., Wiechers, M., & Landaverde-Umana, L. (2022). The impact of course format on student perceptions of the classroom learning environment and teamwork. *Active Learning in Higher Education*. doi:10.1177/14697874221128023
- Moorhouse, B. L., & Wong, K. M. (2022). Blending asynchronous and synchronous digital technologies and instructional approaches to facilitate remote learning. *Journal of Computers in Education*, 9(1), 51–70. doi:10.100740692-021-00195-8
- Morgan, K. O. (Ed.). (2000). *The Oxford Illustrated History of Britain*. Oxford University Press.
- Nacke, L. E., & Deterding, C. S. (2017). The maturing of gamification research. *Computers in Human Behavior*, 450–454, 450–454. doi:10.1016/j.chb.2016.11.062
- Nadkarni, S. (2003). Instructional methods and mental models of students: An empirical investigation. *Academy of Management Learning & Education*, 2(4), 335–351. doi:10.5465/amle.2003.11901953
- O’Sullivan, K., Byrne, D., Robson, J., & Winters, N. (2019). Who goes to college via access routes? A comparative study of widening participation admission in selective universities in Ireland and England. *Social Inclusion (Lisboa)*, 7(1), 38–51. doi:10.17645/i.v7i1.1647
- Ozuah, P. O. (2016, March 02). First, there was pedagogy and then came andragogy. *The Einstein Journal of Biology and Medicine; EJBM*, 21(2), 83–87. doi:10.23861/EJBM20052190
- Paavola, S., Lipponen, L., & Hakkarainen, K. (2004). Models of innovative knowledge communities and three metaphors of learning. *Review of Educational Research*, 74(4), 557–576. doi:10.3102/00346543074004557
- Park, C., Kim, D. G., Cho, S., & Han, H. J. (2019). Adoption of multimedia technology for learning and gender difference. *Computers in Human Behavior*, 92, 288–296. doi:10.1016/j.chb.2018.11.029
- Pea, R. D. (2004). The social and technological dimensions of scaffolding and related theoretical concepts for learning, education, and human activity. *Journal of the Learning Sciences*, 13(3), 423–451. doi:10.120715327809jls1303_6
- Perryer, C., Celestine, N. A., Scott-Ladd, B., & Leighton, C. (2016). Enhancing workplace motivation through gamification: Transferrable lessons from pedagogy. *International Journal of Management Education*, 14(3), 327–335. doi:10.1016/j.ijme.2016.07.001
- Pfeffer, J. (2018). *Dying for a paycheck: How modern management harms employee health and company performance—And what we can do about it*. Harper Business.
- Powell, L., Lambert, D., McGuigan, N., Prasad, A., & Lin, J. (2020). Fostering creativity in audit through co-created role-play. *Accounting Education*, 29(6), 605–639. doi:10.1080/09639284.2020.1838929
- Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education*, 93(3), 223–231. doi:10.1002/j.2168-9830.2004.tb00809.x
- Qian, M., & Clark, K. R. (2016). Game-based Learning and 21st century skills: A review of recent research. *Computers in Human Behavior*, 63, 50–58. doi:10.1016/j.chb.2016.05.023
- Raaper, R. (2018). Students as consumers? A counter perspective from student assessment as a disciplinary technology. *Teaching in Higher Education*, 29(1), 1–16. doi:10.1080/13562517.2018.1456421

- Retana, R. C., & Rodriguez-Lluesma, C. (2022). Authentic learning through the case method in customized executive programs in Latin America. *International Journal of Management Education*, 20(1), 100599. doi:10.1016/j.ijme.2022.100599
- Saks, A., & Haccoun, R. (2018). *Managing Performance Through Training and Development* (8th ed.). Tophat.
- Sanders, L. D., Daly, A. P., & Fitzgerald, K. (2016). Predicting Retention, Understanding Attrition: A Prospective Study of Foundation Year Students. *Widening Participation and Lifelong Learning : the Journal of the Institute for Access Studies and the European Access Network*, 18(2), 50–83. doi:10.5456/WPLL.18.2.50
- Sardi, L., Idri, A., & Fernández-Alemán, J. L. (2017). A systematic review of gamification in e-Health. *Journal of Biomedical Informatics*, 71, 31–48. doi:10.1016/j.jbi.2017.05.011 PMID:28536062
- Schiano, W. T., Anderson, E., & Schiano, B. (2014). *Teaching with Cases: A Practical Guide*. Harvard Business Press.
- Schuh, K. L. (2003). Knowledge construction in the learner-centered classroom. *Journal of Educational Psychology*, 95(2), 426–442. doi:10.1037/0022-0663.95.2.426
- Schunk, D. (2012). *Learning Theories* (6th ed.). Prentice Hall.
- Seinfeld, S., Arroyo-Palacios, J., Iruretagoyena, G., Hortensius, R., Zapata, L. E., Borland, D., de Gelder, B., Slater, M., & Sanchez-Vives, M. V. (2018). Offenders become the victim in virtual reality: Impact of changing perspective in domestic violence. *Scientific Reports*, 8(1), 2692. doi:10.1038/41598-018-19987-7 PMID:29426819
- Selwyn, N., & Stirling, E. (2016). Social media and education... now the dust has settled. *Learning, Media and Technology*, 41(1), 1–5. doi:10.1080/17439884.2015.1115769
- Slater, M., Rovira, A., Southern, R., Swapp, D., Zhang, J. J., Campbell, C., & Levine, M. (2013). Bystander responses to a violent incident in an immersive virtual environment. *PLoS One*, 8(1), e52766. doi:10.1371/journal.pone.0052766 PMID:23300991
- Smetana, L. K., & Bell, R. L. (2012). Computer simulations to support science instruction and learning: A critical review of the literature. *International Journal of Science Education*, 34(9), 1337–1370. doi:10.1080/09500693.2011.605182
- So, H. J., & Brush, T. A. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education*, 51(1), 318–336. doi:10.1016/j.compedu.2007.05.009
- Thomas, L. (2020). Excellent Outcomes for All Students: A Whole System Approach to Widening Participation and Student Success in England. *Student Success*, 11(1), 1–11. doi:10.5204/sj.v11i1.1455
- Ting, F. S. T., Lam, W. H., & Shroff, R. H. (2019). Active learning via problem-based collaborative games in a large mathematics university course in Hong Kong. *Education Sciences*, 9(3), 172. doi:10.3390/educsci9030172

The Evolution of Learning and Technological Innovation

Tobias, S., & Duffy, T. M. (2009). *Constructivist Instruction. Success or Failure*. Routledge. doi:10.4324/9780203878842

Ulman, J. D. (1998). Applying behaviorological principles in the classroom: Creating responsive learning environments. *Teacher Educator*, 34(2), 144–156. doi:10.1080/08878739809555193

Van de Pol, J., Volman, M., & Beishuizen, J. (2010). Scaffolding in teacher–student interaction: A decade of research. *Educational Psychology Review*, 22(3), 271–296. doi:10.1007/10648-010-9127-6

Vlachopoulos, D., & Makri, A. (2017). The effect of games and simulations on higher education: A systematic literature review. *International Journal of Educational Technology in Higher Education*, 14(1), 1–33. doi:10.118641239-017-0062-1

Warren, J. N., Luctkar-Flude, M., Godfrey, C., & Lukewich, J. (2016). A systematic review of the effectiveness of simulation-based education on satisfaction and learning outcomes in nurse practitioner programs. *Nurse Education Today*, 46, 99–108. doi:10.1016/j.nedt.2016.08.023 PMID:27621199

Zhonggen, Y. (2019). A meta-analysis of use of serious games in education over a decade. *International Journal of Computer Games Technology*, 4797032, 1–8. doi:10.1155/2019/4797032

ADDITIONAL READING

Al-Samarraie, H., Teng, B. K., Alzahrani, A. I., & Alalwan, N. (2018). E-learning continuance satisfaction in higher education: A unified perspective from instructors and students. *Studies in Higher Education*, 43(11), 2003–2019. doi:10.1080/03075079.2017.1298088

De-Marcos, L., Domínguez, A., Saenz-de-Navarrete, J., & Pagés, C. (2014). An empirical study comparing gamification and social networking on e-learning. *Computers & Education*, 75, 82–91. doi:10.1016/j.compedu.2014.01.012

De Nito, E., Rita Gentile, T. A., Köhler, T., Misuraca, M., & Reina, R. (2023). E-learning experiences in tertiary education: Patterns and trends in research over the last 20 years. *Studies in Higher Education*, 48(4), 595-615. doi:10.1080/03075079.2022.2153246

Durrani, U. K., Al Naymat, G., Ayoubi, R. M., Kamal, M. M., & Hussain, H. (2022). Gamified flipped classroom versus traditional classroom learning: Which approach is more efficient in business education? *International Journal of Management Education*, 20(1), 100595. doi:10.1016/j.ijme.2021.100595

Geng, S., Law, K. M., & Niu, B. (2019). Investigating self-directed learning and technology readiness in blending learning environment. *International Journal of Educational Technology in Higher Education*, 16(1), 1–22. doi:10.118641239-019-0147-0

Huang, B., & Hew, K. F. (2018). Implementing a theory-driven gamification model in higher education flipped courses: Effects on out-of-class activity completion and quality of artifacts. *Computers & Education*, 125, 254–272. doi:10.1016/j.compedu.2018.06.018

Price, C., & Walker, M. (2021). Improving the accessibility of foundation statistics for undergraduate business and management students using a flipped classroom. *Studies in Higher Education, 46*(2), 245–257. doi:10.1080/03075079.2019.1628204

Razmerita, L., Kirchner, K., Hockerts, K., & Tan, C. W. (2020). Modeling collaborative intentions and behavior in Digital Environments: The case of a Massive Open Online Course (MOOC). *Academy of Management Learning & Education, 19*(4), 469–502. doi:10.5465/amle.2018.0056

KEY TERMS AND DEFINITIONS

Behaviorism: pays attention to students' actions and assesses whether they are learning. The central belief is that students learn through reinforcement - constant feedback that tells them whether their actions are right or wrong. The effectiveness of their learning comes from test scores and homework marks.

Constructivism: argues that learners construct knowledge rather than passively take in information. As people experience the world and reflect upon those experiences, they build their representations and assimilate new information into their pre-existing understanding.

Flipped Learning: is a method that prioritizes active learning during class time by allocating to students lecture materials to be considered at home or outside of class.

Gamification in Learning: involves using game-based elements such as point scoring, peer competition, teamwork, and score tables to help students comprehend new information, test their knowledge and motivate them.

Higher Education Institutions (HEIs): The terms university and HEIs have mainly become synonymous. Universities of sciences are HEIs accredited to issue advanced academic degrees in each field of study. Other HEIs include universities of applied sciences and business schools where education is 'higher', i.e., advanced.

Humanistic Learning: this type of learning is student-centered and encourages the learners to take control of their learning. The learners make choices that can range from daily activities to future goals.

Role-Play: is a method that allows students to explore various situations by interacting with other people to develop experiences and different strategies in a supported environment. Students might play a role similar to their own experience or the opposite part of the interaction. Both options provide the possibility of learning, encouraging the learner to develop an understanding of the situation.