Self-Direct to Learn, Self-Direct to Live: Exploring Learner Choices, Experiences, and Possibilities in a Self-Directed Learning World

Curtis J. Bonk, Indiana University
cjbonk@indiana.edu
http://curtbonk.com/

1

Activity #1 (Paired): How would you Define Self-Directed Learning?

2

30+ Ways Learning is Changing: Three Mega Trends: Engagement, Access, and Customization

3

Bob Clasen, University of Wisconsin

https://www.youtube.com/watch?v=kCm1_MGaqec&feature=youtu.be
February 27, 1934-March 17, 2018
https://www.cressfuneralservice.com/obituary/249139/Robert-Clasen/

4

35+ years ago... Knowledge Navigator (1987) Apple Computer

http://www.youtube.com/watch?v=hb4AzF6wEoc

5

August 6, 2021 The Web is now 30+!

http://info.cern.ch/ (First website)
http://money.cnn.com/2016/08/06/technology/world-wide-web-25-years-old/index.html?iid=hp-stack-dom
https://webfoundation.org/about/vision/history-of-the-web/
https://home.cern/science/computing/birth-web/short-history-web

6

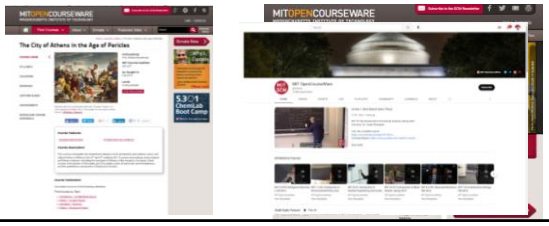
January 15, 2021
Wikipedia is now 20+!

Simon Garfield, Esquire: What We Know And Can Agree On: Wikipedia At 20
https://en.wikipedia.org/wiki/Wikipedia:20th_anniversary
https://www.esquire.com/uk/culture/a34412278/wikipedia-at-20/
https://wikipedia20.pubpub.org/

7

MIT OpenCourseWare (OCW)
MIT OpenCourseWare is now 20+!

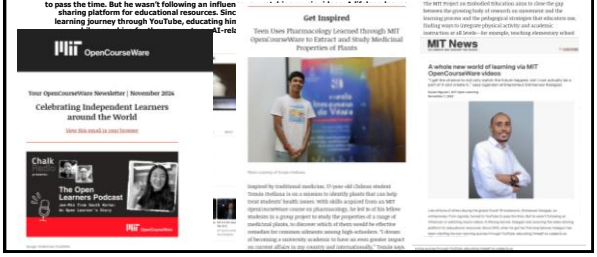
http://ocw.mit.edu/index.htm
https://www.youtube.com/watch?v=0aAEamhJHUI
https://ocw.mit.edu/about/milestones/



8

November 14, 2024
Case Examples (MIT OCW)

Like millions of others during the global Covid-19 lockdowns, Emmanuel Kasigazi, an entrepreneur from Uganda, turned to YouTube to pass the time. But he wasn't following an influen
sharing platform for educational resources. Sinc
learning journey through YouTube, educating hin



9

Fast Forward to 2021…

"Anyone can now learn anything from anyone at any time."

10

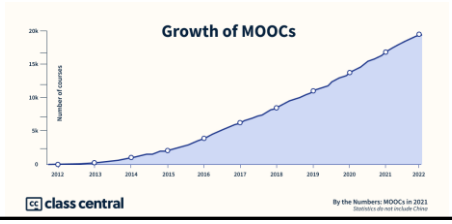
March 13, 2019
The Career Curriculum Continuum

Andrew Hermalyn, Inside Higher Ed
https://www.insidehighered.com/digital-learning/views/2019/03/13/how-universities-can-stay-center-learners-lives-opinion

11

December 14, 2021
A Decade of MOOCs: A Review of MOOC Stats and Trends in 2021

Dhawal Shah, Class Central
https://www.classcentral.com/report/mooc-stats-and-trends-2021/



12

Hundred+ MOOC Clubs

250 MOOCs and Counting: One Man's Educational Journey, Chronicle of Higher Education

http://chronicle.com/article/250-MOOCsCounting-One/229397/?cid=at

If the MOOC movement has faded, nobody told Jima Ngei. Mr. Ngei, who lives in Port Harcourt, Nigeria, has completed and passed 250.

Jima Ngei: "I had this unrelenting fear that this miracle of free access might evaporate soon."

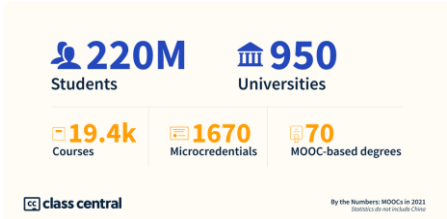
13

December 14, 2021

A Decade of MOOCs: A Review of MOOC Stats and Trends in 2021

Dhawal Shah, Class Central

https://www.classcentral.com/report/moocs-stats-and-trends-2021/



14

February 1, 2021

Learning is More Massive

Yale is offering its highly popular 'happiness' course to high school students for free

By Marika Gerken, CNN

https://www.cnn.com/2021/02/01/us/yale-good-life-class-trnd-wellness/index.html

(3.4 million enrolled, 28,500 reviews)

15

June 6, 2023 (Code in Place)

How to 'democratize education':

Stanford's free online course gains 30,000 students in 3 years

(30,000 students, 120+ countries, 3,000 volunteer teachers)

https://news.stanford.edu/2021/03/22/famous-stanford-coding-course-free-online/

Alcino Donadel, University Business

https://universitybusiness.com/how-to-democratize-education-stanfords-free-online-course-gains-30000-students-in-3-years/

16

January 20, 2022

Arizona State University Announces Effort To Educate 100 Million Students Worldwide

Michael T. Nietzel, Forbes

https://www.forbes.com/sites/michaeltnietzel/2022/01/21/arizona-state-university-announces-effort-to-educate-100-million-students-worldwide/?sh=26a5b45d3fc9

Video (2:07): https://vimeo.com/667987472?embedded=true&source=vimeo_logo&owner=13433234

https://thunderbird.asu.edu/lifelong-learning/100-million-learners

17

MOOC books (2020) and (2015)

18

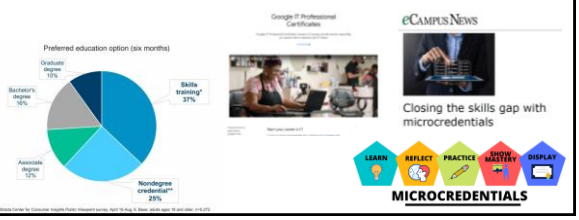
December 26, 2022

Closing the skills gap with microcredentials

Cecil Banhan, eCampus News

Alternative Credentials on the Rise

https://www.ecampusnews.com/2022/12/26/closing-the-skills-gap-with-microcredentials



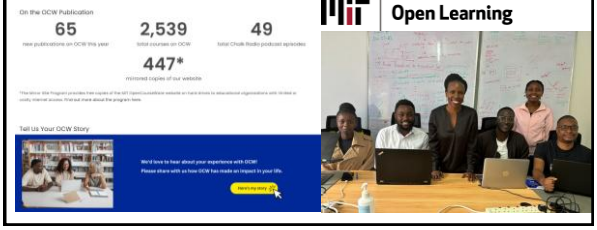
19

August 12, 2024

Learning is More Open

The Impact of MIT OpenCourseWare 2023-2024, Academic Year

https://www.ocw-openmatters.org/give-to-ocw/2024-23-impact-of-ocw/



20

December 17, 2022

Learning is More Open

Computer Classes for Rural African Schools

Nelly Cheboi, CNN Hero Award (TechLit Africa--Kenya)

LinkedIn: https://www.linkedin.com/in/nelly-cheboi

Facebook: https://www.facebook.com/kosicheboi

21

November 17, 2023

Learning is More Open

Your Gateway to Open Access in Asia

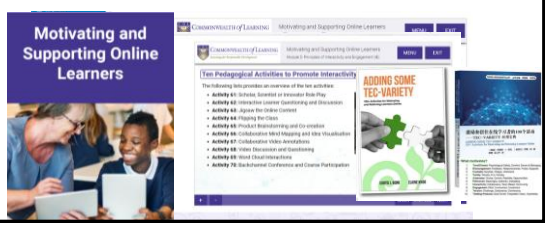
https://openaccessasia.org/

22

September 23, 2022

Motivating and Supporting Online Learners

https://colcommons.org/my-course



23

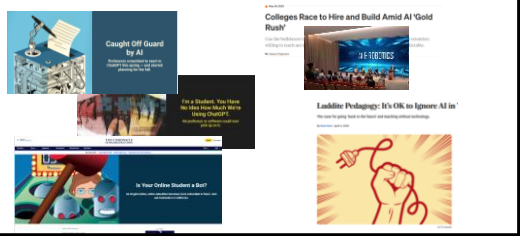
Activity #2 (Paired): How might AI foster a climate of self-directed learning? Any examples?

https://jameschris.medium.com/self-managed-learning-and-ai-a-new-way-to-learn-43948bceda52

24

November 2022 to May 2025: AI, AI, AI, AI…

AI in Higher Education News



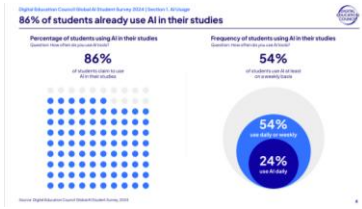
25

August 2, 2024

Digital Education Council Global AI Student Survey 2024

The Digital Education Council

https://www.digitaleducationcouncil.com/post/digital-education-council-global-ai-student-survey-2024



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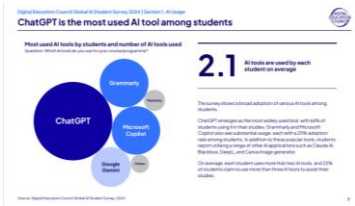
August 2, 2024

Digital Education Council Global AI Student Survey 2024

The Digital Education Council

https://www.digitaleducationcouncil.com/post/digital-education-council-global-ai-student-survey-2024



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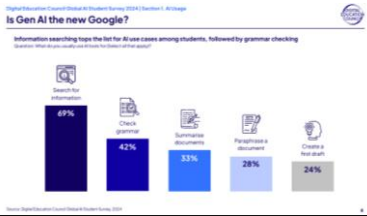
August 2, 2024

Digital Education Council Global AI Student Survey 2024

The Digital Education Council

https://www.digitaleducationcouncil.com/post/digital-education-council-global-ai-student-survey-2024



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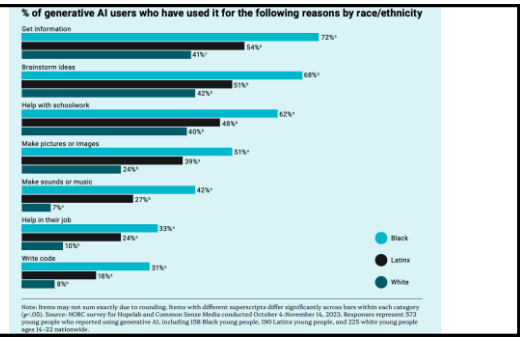


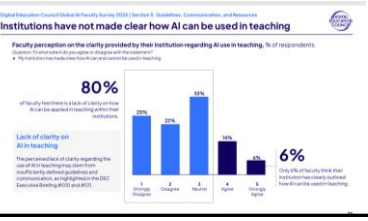
29

January 30, 2024

Digital Education Council Global AI Faculty Survey

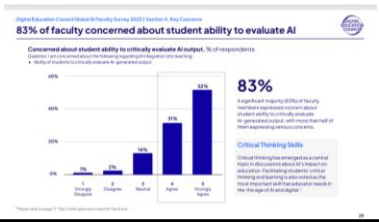
Digital Education Council

https://www.chronicle.com/newsletter/teaching/2025-01-30



30

January 30, 2025
Digital Education Council Global AI Faculty Survey
Digital Education Council
https://www.chronicle.com/newsletter/teaching/2025-01-30

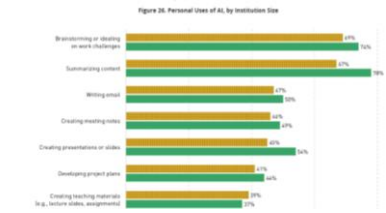


31

January 30, 2025
Digital Education Council Global AI Faculty Survey
Digital Education Council
https://www.chronicle.com/newsletter/teaching/2025-01-30

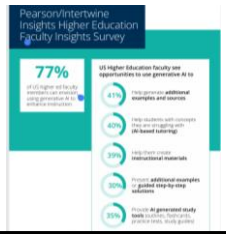
32

February 17, 2025
2025 EDUCAUSE AI Landscape Study: Into the Digital AI Divide
Jenay Robert and Mark McCormack
https://www.educause.edu/content/2025/2025-educause-ai-landscape-study/special-focus-the-digital-ai-divide-between-institutions#Figure26



33

December 2024
Pearson 2024 End of Year AI Report for Higher Education
https://plc.pearson.com/sites/pearson-corp/files/2024-12/ai-perception-and-usage-research.pdf

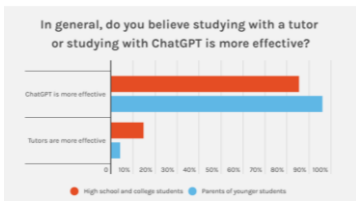


34

AI Tutor Pro and AI Teaching Assistant Pro, Contact North
https://www.aiteachingassistantpro.ca/
https://www.aitutorpro.ca/

35

June 1, 2023
New survey Finds AI is Replacing Tutors for Students
Annie Galvin Telch, Fierce Education
https://www.fierceeducation.com/technology/new-survey-finds-ai-replacing-tutors-students



36

New Survey Finds AI is Replacing Tutors for Students

Some of the reasons cited for ChatGPT usage include:

- Ease of access and convenience of 24/7 availability
- Personalized learning experiences tailored to each student's needs
- Interactive and engaging experience appeals to students
- Comfortability in interacting with a chatbot
- Judgment-free zone when seeking citations or asking questions
- Anonymity fosters a more inclusive learning environment
- Encouragement to explore and learn without hesitation

37

March 2024

Student affordances to using ChatGPT

The Educational Affordances and Challenges of ChatGPT: State of the Field

Helen Crompton and Diane Burke, TechTrends

https://link.springer.com/article/10.1007/s11528-024-00939-0

Student codes

- **24/7 support and accessibility**
  - **Unlimited access**
  - **Variety of subjects/platforms**
  - **Increased opportunities**
- **Explain difficult concepts**
  - **Summarize**
  - **Provide rationale**
- **Conversation partner**
  - **Diverse contexts.**
  - **Customized conversations**
  - **Argument practice**
- **Personalized feedback and materials**
  - **Feedback**
  - **Tailored activities**
  - **Personalized pacing**
  - **Personalized materials**
  - **Recommendations**
  - **Language assistance**
- **Writing Support**
  - **Writing steps**
  - **Ideas**
  - **Editing**
- **Self-assessment**
  - **Generate outlines**
  - **Study guides**
  - **Questions**
  - **Diagnostic reasoning**
  - **Detailed responses**
- **Engagement**
  - **Facilitate discussions**
  - **Collaboration**
  - **Interactive learning**
- **Facilitate self-determination**
  - **Sense of control**
  - **Autonomy over learning**
  - **Increase efficacy**

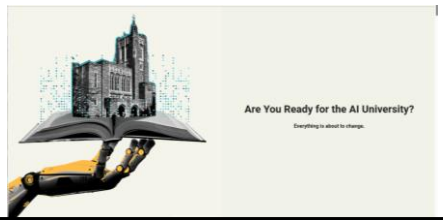
38

April 8, 2025

Are You Ready for the AI University

Scott Latham, The Chronicle of Higher Education

https://www.chronicle.com/article/are-you-ready-for-the-ai-university?sra=true



39

Education 3.0

The Genesis and Emergence of Education 3.0 in Higher Education and its Potential for Africa

First Monday, by Derek Keats and J. Philipp Schmidt, March 2007

http://firstmonday.org/ojs/index.php/fm/article/view/1625/1540

EDUCATION 3.0

Table 1: Educational generations in higher education

Characteristics	Education 1.0	Education 2.0	Education 3.0
Primary role of professor	Source of knowledge	Guide and source of knowledge	Orchestrator of collaborative knowledge creation
Content arrangements	Traditional copyright materials	Copyright and free/open educational resources for students within discipline, sometimes across institutions	Free/open educational resources created and reused by students across multiple institutions, disciplines, nations, supplemented by original materials created for them
Learning activities	Traditional, essays, assignments, tests, some groupwork within classroom	Traditional assignment approaches transferred to more open technologies; increasing collaboration in learning activities; still largely confined to institutional and classroom boundaries	Open, flexible learning activities that focus on creating room for student creativity; social networking outside traditional boundaries of discipline, institution, nation

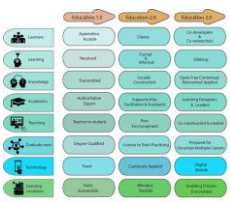
40

September 18, 2017

Education 1.0 to 3.0

Gilly Salmon, University of Liverpool, UK

http://www.gillysalmon.com/learningfutures.html



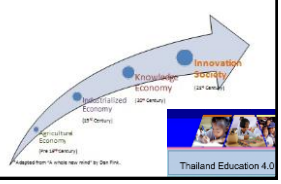
41

Now What is Education 4.0?

"Innovation-producing education. Learn more in: Development of Individual Agency within a Collaborative, Creative Learning Community"

http://www.igi-global.com/dictionary/education-40/41755

https://thinc.in.th/engadmission/education4.html **(Chula Engineering)**



42

Is there an Education 5.0?

Education 5.0:

Collaboration and Creativity in Improving Students' Digital Intelligence
https://btqur.or.id/index.php/injosedu/article/view/202

Education 5.0 is an innovative approach to education that integrates advanced technology and the latest learning methodologies to create a student-centred learning environment. The research method conducted in this study is literature. The results showed that students' digital intelligence, creativity, and collaborative skills improved. The implementation of Education 5.0, which embraces technology and innovative learning methodologies, facilitates a more dynamic and interactive learning environment, increasing student motivation and participation in the learning process.

43

Education 5.0 (according to ChatGPT)

Education 5.0 is an evolving concept that reflects the integration of advanced technologies, digital tools, and modern pedagogical practices into the education system to prepare learners for the future of work and society. It draws inspiration from **Industry 5.0** and focuses on human-centered learning, where technology supports both academic growth and the development of essential life skills.

Here are some key features of **Education 5.0**:

1. **Learner-Centric**: The emphasis is on personalized learning, where students take an active role in their education, and learning pathways are tailored to individual needs, preferences, and learning styles.
2. **Human-Technology Collaboration**: Education 5.0 harnesses the power of AI, machine learning, and other digital technologies to complement human teachers, making learning more efficient, accessible, and engaging. These technologies support, rather than replace, human educators.
3. **Skills for the Future**: The focus is on developing critical skills such as creativity, problem-solving, emotional intelligence, and ethical reasoning. There is a strong emphasis on **soft skills** and **transversal skills** that help learners adapt to rapidly changing work environments.

44

Education 5.0 (according to ChatGPT)

4. **Real-World Problem-Solving**: Project-based and experiential learning are central to the concept of Education 5.0, encouraging students to work on real-world challenges that require interdisciplinary knowledge and collaboration.
5. **Global and Digital Citizenship**: In line with the globalized world, Education 5.0 promotes the idea of global citizenship and digital literacy. Learners are trained to navigate complex socio-cultural and environmental challenges while being responsible digital citizens.
6. **Lifelong Learning**: Education 5.0 advocates for continuous learning beyond formal education, encouraging individuals to acquire new skills and knowledge throughout their lives to remain relevant in a rapidly evolving world.
7. **Sustainability and Ethical Focus**: Education 5.0 emphasizes the importance of sustainability and ethical responsibility. It integrates learning about environmental challenges and social justice, encouraging students to become change agents for a more sustainable future.

It is seen as the next stage in the evolution of education, following previous models like Education 3.0 (digital and networked learning) and Education 4.0 (which emphasized technology-enhanced and adaptive learning).

45

Education 5.0:

https://uqualio.com/post/education-5-0-how-new-trends-are-shaping-the-future-of-education

Education 5.0 focuses on personalized, learner-centered education through digital technologies. It enhances engagement, improves learning outcomes, and broadens access to education. Key features include personalized learning, interactive tools like gamification and VR, and greater accessibility through online platforms.

46

Now What is Education 5.0?

Education 5.0:

https://www.sydle.com/blog/education-5-0-61e71a99edf3b9259714e25a

Education 5.0 is the outgrowth of this idea. It doesn't discard the proposals of Education 4.0, but it adds a more human perspective to learning, including social and emotional abilities in order to promote lesser environmental impact with greater health and safety.

- **Collaborative work**
- **Better interpersonal relations, empathy, and tolerance of diversity**
- **Creativity**
- **Conflict management**
- **More fluid communication**

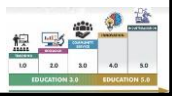
47

Now What is Education 5.0?

Education 5.0:

https://www.sydle.com/blog/education-5-0-61e71a99edf3b9259714e25a

Education Enhances Society: Education 5.0 focuses on preparing individuals with the skills, mindset, and adaptability needed to thrive in a rapidly evolving world. By nurturing critical thinking, creativity, and interdisciplinary problem-solving abilities, Education 5.0 contributes to the overall advancement of Society 5.0's goals, such as sustainable development and technological integration.



48

Activity #3 (Personal, then Paired, and then Small Group): What will Education 5.0 look like in 1-2 decades?

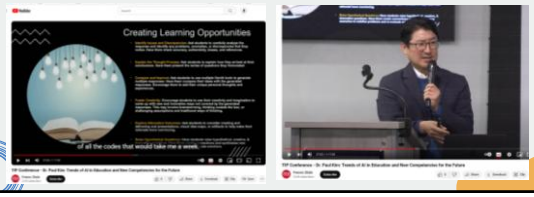
https://www.orangemantra.com/blog/ai-in-education/

49

March 8, 2024

Paul Kim, Stanford

Cal State Fresno, TIP Conference - Dr. Paul Kim: Trends of AI in Education and New Competencies for the Future
Video (1:17:03)
https://www.youtube.com/watch?v=DsUEhxlNku8
Keynote ("Trends of AI in Education and New Competencies for the Future") at the Fresno State University event, Exploring Ethical Uses of AI.



50

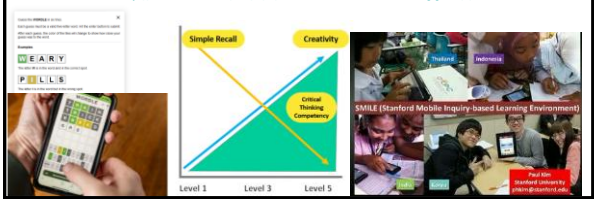
June 6, 2022

Learning is More Game-based

How teachers use Wordle–and other games–for next-level engagement

Laura Ascione, eSchool News

https://www.eschoolnews.com/2022/06/06/how-teachers-use-wordle-for-next-level-engagement/2/



51

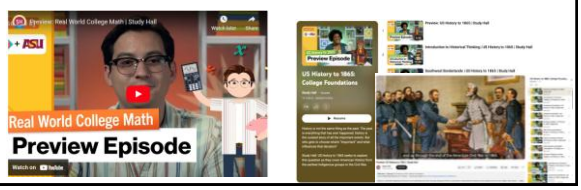
January 25, 2023

Learning is More Video-based…

YouTube-iversity, ASU

Susan D'Agostino, Inside Higher Ed

https://www.insidehighered.com/news/2023/01/25/arizona-state-turns-youtube-reach-learners-margins



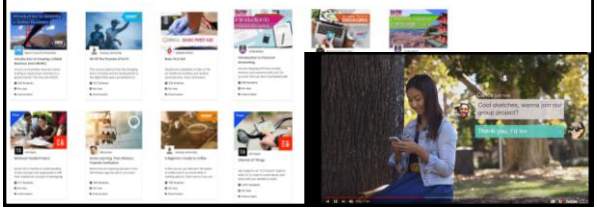
52

Learning is More Self-Directed

The LMS Market is Quickly Losing Ground

Carol Leaman, CLO

https://www.openlearning.com/
https://www.openlearning.com/



53

December 24, 2022

Learning is Informal

Will AI change the future of language learning? | ChatGPT

Grace Guo, Mandarin Chinese, Tom Gally Japanese

https://www.youtube.com/watch?v=WNfmU6IbVbE

54

Learning is More Self-Directed

Language Lessons Online

e.g., BBC Learning English, Duolingo, Babbel, SpanishPod, etc.

(Zixi Li & Curt Bonk, 2023 published, Duolingo Research)

http://www.bbc.co.uk/learningenglish

55

December 6, 2024

How Faculty Can Harness Generative AI for Enhanced Learning: Part 1: TEC-VARIETY and R2D2

Curt Bonk, Student Learning Outcomes (SLO), COACHes Hub

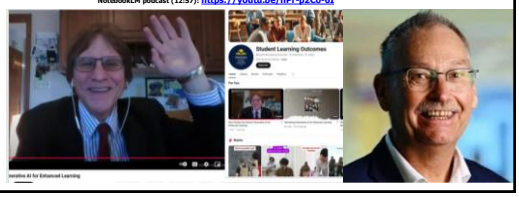
Mark Brown, 'My Leukemia Story': https://on.soundcloud.com/ap6KdI6PXUnoC2x88

NotebookLM Podcast (17:44): https://rss.com/podcasts/friday-slo-talks/1790741/

SLO: https://www.youtube.com/@studentlearningoutcomes-slos

NotebookLM Podcast (20:45): https://www.youtube.com/watch?v=I3IIu5FSdsQ

NotebookLM podcast (12:57): https://youtu.be/hPr-p2Co-6I



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May 15, 2025

Learning is More Digitally Rich

Suno: Makes a Song About Anything

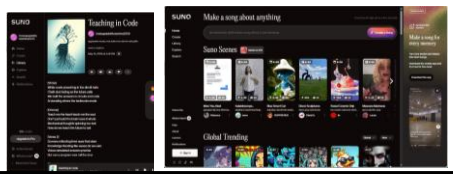
How About: The medical educators and AI song, indie rock

https://suno.com/

The Future We Create: https://suno.com/song/5343dd7d-8bcd-4d01-88ab-0a41c4469f5c

Teaching in Code: https://suno.com/song/8704ddfc-5d25-4488-95e9-37863b06e3cd

https://suno.com/create?signup_source=splashpage&referrer=%2Fhome&redirected_from=signup&wid=default



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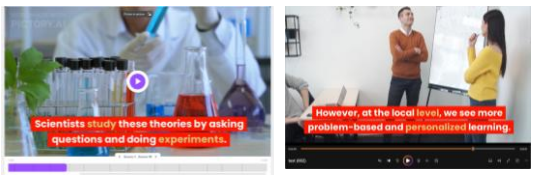
November 12, 2023

Learning is More Video-based…

Pictory

https://video.pictory.ai/1699816452918/20231112193620090yUhq3NLYZR0ppOX

https://app.pictory.ai/



58

Activity #4 (Personal, then Paired, and then Small Group): How might you use one of those AI tools?

https://www.paradisosolutions.com/blog/ai-and-self-directed-learning/

59

Cats in Cathedral

Sora

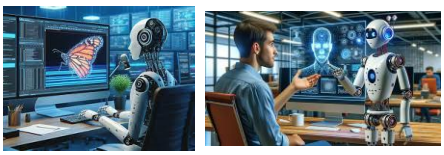
Sora

February 20, 2024

Learning is More Visual

Sora: Finally, An AI Video Generator

Video (3:34): https://youtu.be/lBx3xW1ua-E



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February 16, 2024

Learning is More Visual

OpenAI's Video Generator Sora Is Stunning and Utterly Terrifying

Tony Ho Tron, The Daily Beast

https://www.thedailybeast.com/openais-video-generator-sora-is-stunning-and-utterly-terrifying

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February 16, 2024

Learning is More Visual

OpenAI's Video Generator Sora Is Stunning and Utterly Terrifying

Tony Ho Tron, The Daily Beast

https://www.thedailybeast.com/openais-video-generator-sora-is-stunning-and-utterly-terrifying

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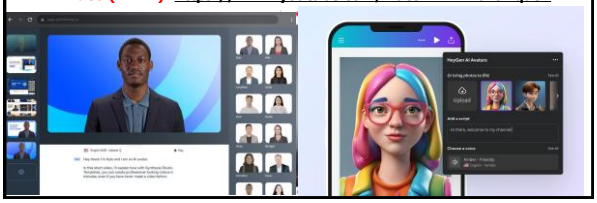
Activity #5 (Paired): How might you use AI video generators? How might it be useful for SDL?

Video (11:22): https://www.youtube.com/watch?v=4Du-ofrqaSk



63

Wanted:
Billions of Self-Directed Learners

https://www.peoplematters.in/article/training-development/the-era-of-self-directed-learning-hrs-new-role-and-strategy-24348

64

Benefits of Self-Directed Learners

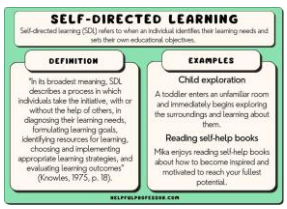
https://discoverpraxis.com/reasons-not-to-go-to-college/

65

May 29, 2024

Self-directed Learning

https://helpfulprofessor.com/self-directed-learning-examples/



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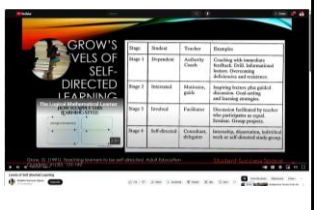
Levels of Self-directed Learning

https://www.youtube.com/watch?v=W0l958z9JUo



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AI Driven Self-Directed Learning

Benefits of AI in Personalized Learning

https://www.paradisosolutions.com/blog/ai-and-self-directed-learning/

AI Driven Self-Directed Learning

Benefits of AI in Personalized Learning

Here are the benefits of AI in personalized learning, summarized in short points:

- **Tailored Content:** AI customizes learning paths to meet individual learner needs.
- **Pace Control:** Allows learners to progress at their own speed, adjusting difficulty in real-time.
- **Immediate Feedback:** Provides instant insights on performance to correct mistakes promptly.
- **Engagement:** Keeps learners motivated by adapting content to be more relevant.
- **Empowerment of Educators:** Automates routine tasks, letting teachers focus on mentorship and support.
- **Enhanced Learning Retention:** Personalized approaches foster better understanding and retention of material.
- **Global Accessibility:** Breaks down geographic and economic barriers, democratizing education.

68

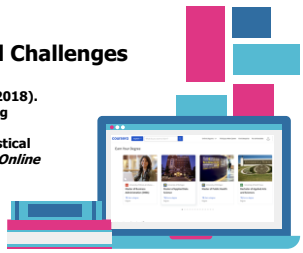
Activity #6 (Personal, then Paired, and then Small Group):
What have you learned so far?

https://www.orangemantra.com/blog/ai-in-education/

69

Study #1
MOOCs Design Considerations and Challenges

Zhu, M., Bonk, C. J., & Sari, A. (2018). Instructor experiences designing MOOCs in higher education: Pedagogical, resource, and logistical considerations and challenges. *Online Learning, 22*(4), 203-241.



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Study Purpose & Research Questions

The purpose of this study is to provide suggestions for future MOOC instructors and instructional designers in higher education through exploring MOOC design considerations and challenges from the instructor's perspective.

1. **What are the design considerations of instructors when designing MOOCs?**
2. **What challenges do instructors perceive when designing MOOCs?**
3. **How do instructors address the challenges that they perceive related to MOOCs?**

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Method

Sequential mixed methods design (Creswell & Clark, 2017)

Data Collection:

- **Survey**
- **Interview**
- **Course review**

Participants:

- **143 survey participants (10% response rate)**
- **12 interviewees**

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12 Interviewees

No.	Countries	Subject areas	Platforms
1.	The U.S.	Language and Literacy	Coursera
2.	The U.S.	Education	Coursera
3.	The U.S.	Education	Canvas
4.	The U.S.	Chemistry	Coursera
5.	UK	Medicine and Health	FutureLearn
6.	UK	Language and Literacy	FutureLearn
7.	Hong Kong (China)	Math	Coursera
8.	Mainland China	Math	Coursera
9.	Canada	Psychology	Coursera
10.	Australia	Medicine and Health	Open2Study
11.	Sweden	Computer Science	edX
12.	India	Management	edX

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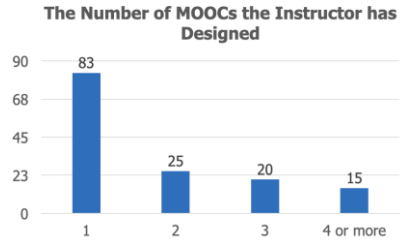
Research Context



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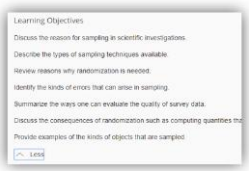
Findings QR1

RQ #1. What are the design considerations of instructors when designing MOOCs?

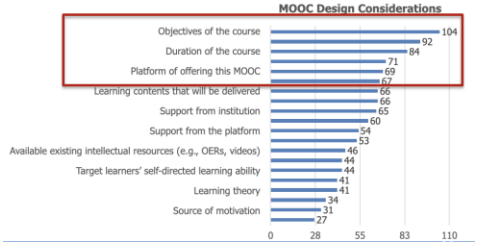
- **Learning objectives**
- **Assessment**
- **Time for designing MOOC**
- **Engaging learners**

An example of learning objectives:



75

Findings QR1: Survey results



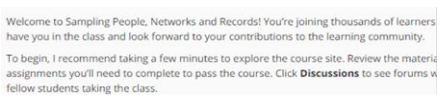
76

Findings QR1: Interview results

Engage learners

One instructor from US mentioned:

"I engaged people in the forum. So each week I would write a message that would be the new welcome page for the week that would say, 'hey come to the forum and ask questions about this or come to the forum introduce yourself'... Of course, I tried to get students to feel like I was engaged with them during the videos by asking them questions and telling them to do things during the video."



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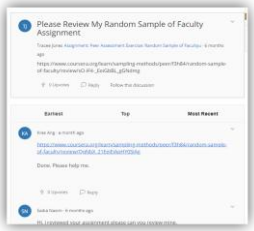
Findings QR2

RQ #2. What challenges do instructors perceive when designing MOOCs?

- **Assessment methods**
- **Engaging students' learning**
- **Time limitation**



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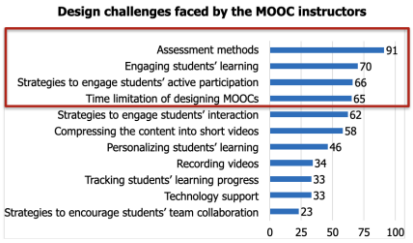
Findings QR2: survey result



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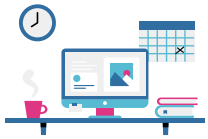
Findings QR2: Interview results

Time limitation

One instructor from education subject mentioned:

"I think one of the challenges is time. It does take a lot of time to get the videos done. I did not get a course release when I was doing, and it was a side project at the same time as my regular load."



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Findings QR3

RQ #3. How do instructors address the challenges that they perceive related to MOOCs?

- **Explore other MOOC examples.**
- **Seek help from the platform, colleagues, institutions, etc.**

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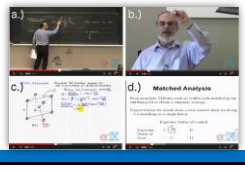
RQ3 Interview Results

Explore other MOOC examples

One MOOC instructor from the US mentioned:

"**When I started making the MOOC, I could see MOOCs that other people had made.** So I could see what other people did in terms of having videos with questions embedded in the videos, which I really liked."



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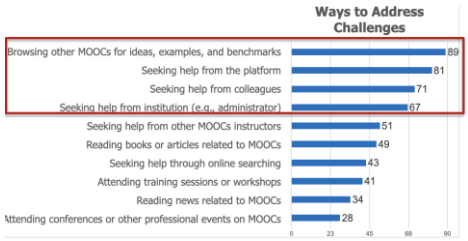
Findings QR3: Survey results



83

Study #2. Scaffolds for Self-Directed Learning: A Study of Nepali Teachers Supporting Nepali Adolescents' Success in MOOCs

Li, Z., Zhu. M., Kadirova, D., & Bonk, C. J. (in press). *Towards self-directed learning: How do Nepali adolescents learn with MOOCs. Distance Education.*

Li, Z., Kadirova, D., Bonk, C. J., & Zhu. M. (in review). Community in open: Supports, challenges, and impacts of local learning communities of adolescent MOOC learners. *Online Learning*

INDIANA UNIVERSITY BLOOMINGTON

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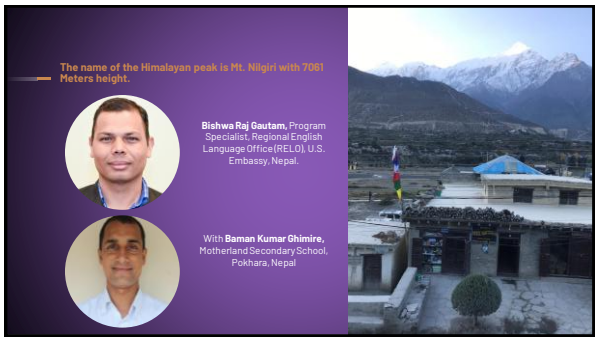

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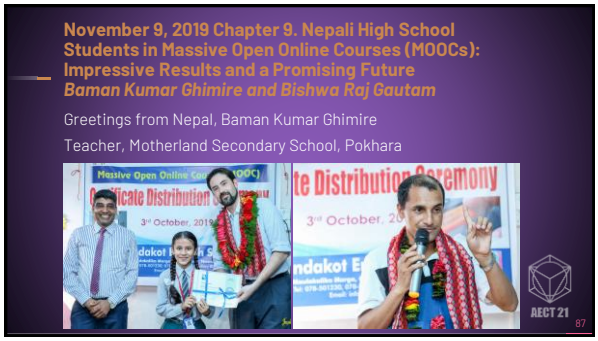

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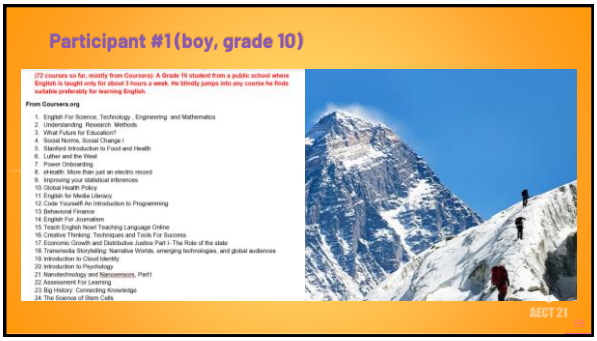

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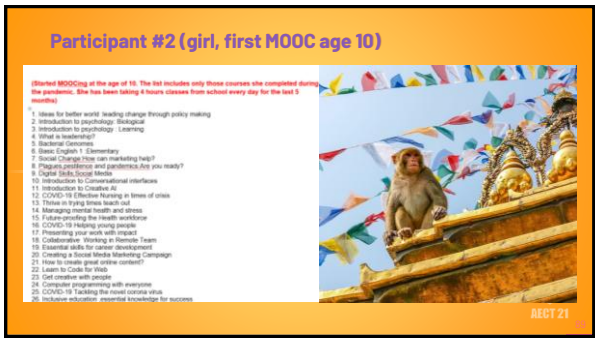

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Self-directed Learning (SDL)

Sze-Yeng and Hussain (2010) defined self-directed learning as "a learner's autonomous ability to manage his or her own learning process, by perceiving oneself as the source of one's own actions and decisions as a responsibility towards one's own lifelong learning."

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Scaffolds | Teacher Support

"The first key feature that distinguishes scaffolding from other forms of instructional support is that is temporary support that is provided as students are engaging with problems" (Belland, 2014, Collins et al, 1989, Wood et al, 1976, in Belland, 2017).

- ✓ According to Belland (2017), scaffolding forms include one-to-one scaffolding, peer, and computer-based scaffolding.
- ✓ Vygotsky stated (1978) that scaffolds include various guides and strategies that serve as a support system for students in the process of obtaining knowledge which they are not able to acquire on their own.

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Theoretical Framework

Based on Garrison's (1997) self-directed learning model, SDL has three overlapping aspects:

1. Self-management (task control)
2. Self-monitoring (cognitive responsibility)
3. Motivation (both entering motivation and task motivation)

93

All Participants of the Study

1. Convenient sampling
2. Recruitment: contact teacher
   - Nepali students who took and completed at least one MOOC
   - Nepali teachers who used MOOCs in their teaching, and whose students took and completed MOOCs

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Participants

Participant	Job title	Years of using MOOCs	School Type	Number of Students Completed MOOCs
Teacher #1	Science Teacher	4 years	Private	15-20
Teacher #2	EFL Teacher	7 years	Private	more than 20
Teacher #3	EFL Teacher, Principal	3 years	Private	more than 20
Teacher #4	EFL Teacher	1 year	Private	more than 20
Teacher #5	EFL Teacher	1 month	Public school; ACCESS	2 completed
Teacher #6	EFL Teacher	1 month	Public school; ACCESS	2 completes
Teacher #7	EFL Teacher, Principal	8-9 years	Private	more than 20

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RQ 1

Sources of support | parental; teacher's fading support; external support

"They did on their own pace but initially we guided them, initially we guided them and every week what we follow up them initially but later on they did by themselves." (T#1, line-134-136)

"…the school has been promoting these kinds of activities, please, to let your children be with the computer. If they ask for, and it was really very difficult to convince the parents as well." (T#3, line 390-396)

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RQ 1

Sources of support | parental; teacher's fading support; external support

"And we've been brought up in a society where you you're either doctor or engineer or the sort of son was you could not be either one of them, so you were unsuccessful. So learning about so many different fields through massive open online courses was really a huge eye opener and has made me believe in many different subjects and many different fields and on with growing my interest in those fields that's all."

97

RQ 1

Sources of support | parental; teacher's fading support; external support

- Local schools provide both physical space and awards to facilitate and support students' learning with MOOCs.

"We used to have six computers in our class so and our we me with my friends we were more than 20 in the class, so we need to manage six at one time to take those mooc courses. And in the beginning, everyone was fully interested in taking those courses and sometimes if the if the time goes, and then we are we used to have time limit of 20 minutes or 30 minutes to do those courses…

98

RQ 1

Sources of support | parental; teacher's fading support; external support

I still remember our school's page posted about my certificates my and our groups certificates through the engagement of MOOCs in Facebook and thousands of people saw that and many people messaged me about how they can engage in that."

99

RQ 2

Substantial gains | teachers learning from MOOCs, benefits, positive outcomes

"So somehow, very I tell prospective, that global prospective or dimension, you know, entered in their learning unknowingly as well." (T#7, line 808-810)

***"So, I think it will develop to develop their life skills, I think."*(T#5, line 565-566)**

***"… and in this course, especially English language is involved. If they do this course, they will learn this language more than they learn from the school, because that is depending on their self learning"*(T#6, line 570-574)**

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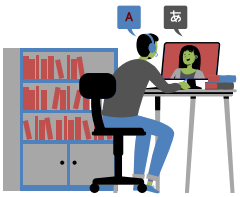
SDL Definition From Students' Point of View

101

101

Study #3: Li & Bonk (2023, Online First)
Self-directed language learning in Duolingo



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Activity #7 (Paired): Have you attempted to learn a language online? How did it go? Any strategies that worked?

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April 29, 2025

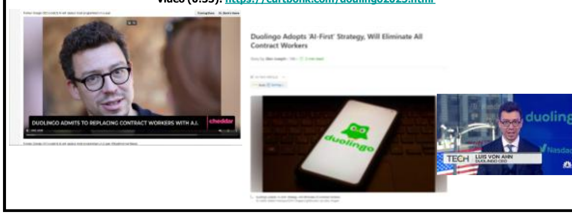
Duolingo Adopts 'AI-First' Strategy, Will Eliminate All Contract Workers

Jibin Joseph, MSN

https://www.msn.com/en-us/technology/artificial-intelligence/duolingo-adopts-ai-first-strategy-will-eliminate-all-contract-workers/ar-AA1DPGte

Former Google CEO predicts AI will replace most programmers in a year

Video (0:33): https://curtbonk.com/doulingo2025.html



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Duolingo

- Duolingo is a free language-learning platform, which has become one of the most popular tools for language learning (Jašková, 2014).
- It includes a language-learning website and a mobile application, offering free lessons among 40 languages for more than 500 million learners (Blanco, 2021)

Number of countries studying most popular languages in 2021

ENGLISH	SPANISH	FRENCH	GERMAN	JAPANESE
120	31	24	7	5
ITALIAN	KOREAN	IRISH	SWAHILI	SWEDISH
2	2	1	1	1

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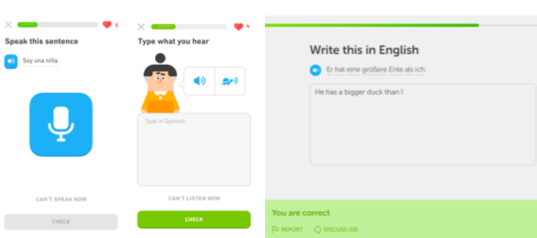
Platform Overview



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01

Key Features

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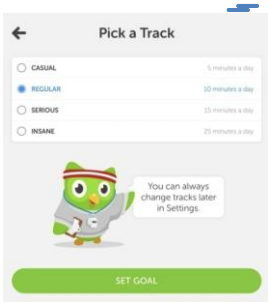
Goal Setting

- **Based on microlearning.**
- **Is goal-oriented.**
- **Range from 5 min/day to 20 min/day.**
- **Flexibility to personalized.**
- **Teachers may track students' performance if use "Schools"**



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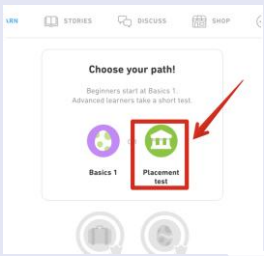
Placement test

Offered at the beginning that enables users to **assess** their level of proficiency in the target language.

The test only takes few minutes to complete and will provide an approximate estimation of a user's skills.



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Four Types of Questions

Vocabulary: You'll see a picture of the item and be asked to name it in either your native or target language.

Listening: You'll hear an audio clip of a word or sentence and be asked to type it in. You'll see "Type what you hear" above it. (Note that you won't be translating for these questions — for instance, if you hear the sentence in Spanish, type it in Spanish, not English.) To play the clip more slowly, click the smaller turtle icon beneath the main speaker button.

Translation: You'll be asked to translate a word or sentence out of English and into the other language, or vice versa.

Speaking (optional): You'll be asked to repeat or translate sentences using the microphone on your computer or mobile device.

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Example Items: Vocabulary

Your learner may get vocabulary questions asking them to identify a picture in response to the question. They can hover over each picture to hear an English speaker pronouncing the word.

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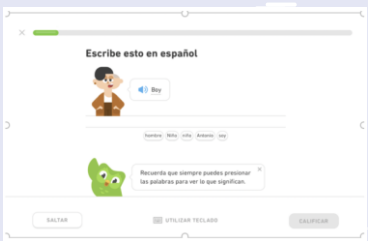
Example Items: Translation

The test includes translation items. Learners are asked to translate an English word or sentence into their native language.



113

Example Items: Listening

Learners will hear a sentence in English. They can choose to hear it again by clicking on the speaker button or hear it in slow-motion by clicking on the turtle.

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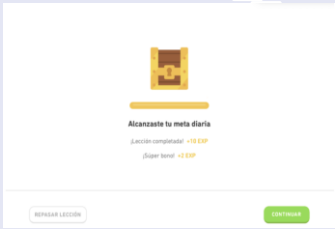
Example Items: After the Test

After completing the test, the learner should see a treasure chest. Beneath the treasure chest there is information about the number of experience points they have been awarded for taking the test.



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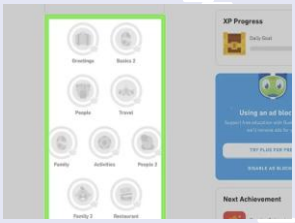
Access the Skill Tree

- The skill tree is where you'll do most of your learning.
- It's split into different units, and each unit contains multiple lessons.
- As you progress through the language, more units will be available to you .



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Gamification

Duolingo applies gameful learning to keep the learner motivated and consistently engaged in a positive and casual learning environment.

Its learning process is structured as a learning game that has game features, such as reward, badges, and leader-board, to allow users to learn as playing.

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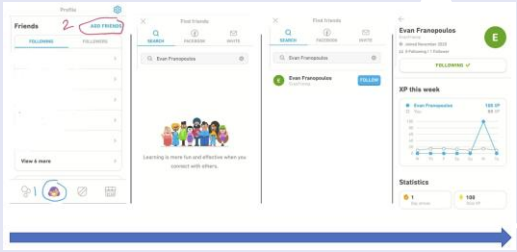
The Friends Feature



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04

Our Research

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Overview of the Study

This study investigated the types of self-directed learning (SDL) skills that learners apply when learning a language out of the classroom with systems like Duolingo. It also explored how the design and delivery of Duolingo can support and facilitate student SDL.

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Context of the Study

- **Learning with technology (e.g., Duolingo) in an out-of-classroom context is often challenged by the absence of instructors and lack of guidance.**
- **Therefore, it demands a much higher level of self-directed learning (SDL) ability for the learners to be successful.**
- **White (1995) suggests that learners need to have strong independence, autonomy, and control to self-manage learning and make their own decisions in distance language learning.**

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Garrison's (1997) Framework of SDL

- **Self-management** is the task control ability that is associated with external activities, such as time, resources, and goal management.
- **Self-monitoring** is the cognitive and metacognitive process of establishing learning strategies and learning paces.
- **Motivation** can initiate and sustain learning efforts towards cognitive goals (Garrison, 1997).

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Research Questions

- **How do Duolingo learners self-manage their learning goals, time, resources, and support?**
- **What strategies are employed by Duolingo learners to overcome challenges and frustrations related to learning foreign languages with Duolingo?**
- **What motivating factors underpin the decisions of learners to learn a foreign language with Duolingo?**
- **How does the design and delivery of Duolingo foster learners to be self-directed learners?**

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Study Design

The 10 research participants represented a wide range of age and ethnic groups.

Participants of this study were screened and identified through the previous survey that was distributed through the Duolingo forum, an online language community using Discord, as well as through postings on Facebook pages, emails, and WeChat groups. The interviewees' demographics are listed in Table 1.

Table 1. Duolingo Interviewee Demographic and Language Learning Information

Interviewee	Gender	Country	Native Language	# of years using Duolingo	Languages learned through Duolingo
P1	M	Mexico	Spanish	More than 5 years	English, French
P2	M	United States	English	1 – 3 years	Japanese
P3	F	China	Chinese	Less than 6 months	Japanese
P4	F	Costa Rica	Spanish	6 months – 1 year	Portuguese
P5	F	China	Chinese	1 – 3 years	French
P6	F	Indonesia	Indonesian	6 months – 1 year	French, German, Spanish
P7	M	Germany	German	6 months – 1 year	Chinese
P8	F	United States	English, French, Spanish	6 months – 1 year	Arabic
P9	M	United Kingdom/ Singapore	English	6 months – 1 year	Chinese, Indonesian, Spanish
P10	F	Singapore	Malay	Less than 6 months	Japanese

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Self-monitoring

- Learners self-monitor their learning process through feelings of knowing, content evaluation, and the judgment of the adequacy of information available. **Learners can spontaneously recognize the content they learned in Duolingo when they unconsciously encounter the language in daily life.** However, they fail to recall the entire knowledge base that they learned with accuracy or completion.
- Learners highly rely on technology to monitor their learning through habit reinforcement and tracking.

"Well, what I can do now is when somebody is talking in French, I know that is French. **I can identify some really simple French dialogue** when somebody says it."

Interviewee #5

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Goal Management

- **Goals** specify **the amount of effort required to succeed** and the self-satisfaction anticipated (Schunk, 1990).
- **Goal setting leads to task assessment** and considerations of the appropriate learning strategies from a metacognitive perspective (Ridley et al., 1992).
- In MALL, **timescales** influence the dynamic nature of the learning ecology and so **influence the learning goals**.
- Setting **realistic and achievable goals** is more likely to lead to a successful SDL.

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Self-management

- **Specific goals** can lead to **improved performance**, and learners' learning goals can be self-initiated or technology-defined.
- **Distractions** from daily living may **make time management difficult**, both physically and psychologically.
- A single MALL tool like **Duolingo is not enough** to master a language in all dimensions; as a result, they seek and manage **other resources** to complement their learning.
- **Both human and material resources** can be used to complement Duolingo learning.

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Self-management

"I think my biggest suggestion, as I mentioned a little earlier, is **just don't use Duolingo as your only resource**. Because particularly nowadays or for any language, there are so many other resources out there and there are certain things that each of them does better or worse than the others."

Interviewee #2

"My opinion on that is since Duolingo is a non-human system, I think to have **a human tutor** at the end of a section would actually be a nice relief, a nice change of pace."

Interviewee #9

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Time Management

- The majority of interviewees (n=8) stated that **daily life activities are a constraint** to their time management.
- The significant obstacle is due to **work demands,** which have an impact on learners' physical and emotional ability to complete their learning goals on a consistent basis.

"Because **my schedule** can be busy. Sometimes, especially during the exam period in schools, I really have no time. I'm just busy completing my markings."

- **Interviewee #10**

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Finding: Motivation

Language learners are mostly driven by intrinsic motivators that relates to culture, travel, and brain training.

Q3. What motivated you to learn a foreign language?

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Finding: Motivation

- **The idea is that I would really like to go to Europe someday. (P5)**
- **So in the last month, the idea came up of going from Hamburg with the train to Moscow and then transit to the trains. And then make some stops in Siberia and then end at Beijing and enjoy the visit in China. (P7)**
- **But for people, who are more like my mother, when she talks about it, she is just like, "oh, well, I'm learning it. I don't expect to be conversational and I'm just learning it to keep my mind sharp." (P8)**

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Motivation

- **Learners are mostly driven by intrinsic needs and interests**, such as culture, **travel**, and brain training.
- Learners use tools like Duolingo to gain a **sense of achievement** and fulfillment through maintaining streaks, progressing learning, organizing events, and socializations.

"Because sometimes you just lay on your bed, watch some operas or reality shows and do nothing, **but then your Duolingo pops and you'll learn French for five minutes**, and you feel really good about yourself. I don't think people will interpret this way, but it helped me to build up this positive energy for life."

Interviewee #5

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Discussion

- This study found that **nine of the ten interviewees were strongly driven by intrinsic motivators**, such as social engagement and personal interests, though extrinsic motivation such as for school or obtaining a VISA may also exist.
- It suggests that curriculum developers and instructional designers may **seek a way to bridge students' language learning requirements with the students' innate interests and needs, such as socialization**.
- By doing so, it might close the gap between students' highly desired learning of languages often pursued informally with their academic needs in formal classroom settings.

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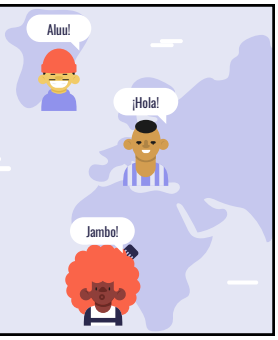
THANKS



Do you have any questions?
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Related Publications

7. **Li, Z., Bonk, C. J., & Zhou, C. (2024). Supporting learner's self-management for self-directed language learning: A study within Duolingo. *Interactive Technology and Smart Education*, *21*(3), 381-402.**

8. **Li, Z., & Bonk, C. J. (2025). Self-directed language learning with Duolingo in an out-of-class context. *Computer Assisted Language Learning*, *38*(3), 569-591. https://doi.org/10.1080/09588221.2023.2206874**

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IST CONFERENCE, 2023

Study #4. Investigating South American Massive Open Online Course (MOOCs) Instructors' Designs Supporting Self-Directed Learning (SDL)

Xiaoying Zheng, Zixi Li, Dr. Curtis J. Bonk, Dr. Meina Zhu, Dr. Thomas Reynolds

INDIANA UNIVERSITY BLOOMINGTON

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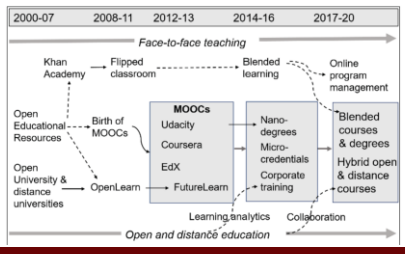
Massive Open Online Course (MOOCs)



(Sharples,M., 2019)

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Garrison's (1997) SDL Framework

1. **Self-management** refers to the ability of task control, including goal setting and the management of time, resources, and support.
2. **Self-monitoring** refers to the cognitive and metacognitive process to construct learning approaches and strategies while setting the learning pace.
3. **Motivation** refers to both entering motivation and task motivation, which can initiate and sustain learning efforts towards cognitive goals.

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LITERATURE REVIEW

MOOCs & SDL

1. MOOC learning significantly differs from traditional classroom learning regarding the roles and duties of both instructors and learners (Zhu et al., 2020).
2. **Successful MOOCs learning requires self-directed learning (SDL) skills** (Kim et al., 2021; Zhu et al., 2020).
3. As the **opportunities to learn from free and open online resources have become increasingly common**, there has been increased research interest in self-regulated learning (SRL) and SDL when accessing MOOCs (Alonso-Mencía et al., 2020).

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LITERATURE REVIEW

Research Gaps

1. **Less than 1%** of the scientific literature on MOOCs has been centered in the South American region (Veletsianos & Shepherdson, 2016).
2. Existing research on MOOCs in South America has primarily employed **quantitative research methods** (Sánchez & Reyes-Rojas, 2019; Veletsianos & Shepherdson, 2016; Zhu, Sari, & Bonk, 2018).
3. While the majority of MOOCs research focused on students' learning, recent research indicated that designing MOOCs is **challenging for instructors** because of MOOCs' massiveness and openness (Sari et al., 2020).

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LITERATURE REVIEW

Research Questions

1. What strategies do MOOCs instructors in South America use to **facilitate learners' self-management skills**, such as goal setting, time, and resource management?
2. What strategies do instructors use to **support learners' self-monitor skills**, such as self-evaluating learning and monitoring process?
3. What strategies do instructors use to **maintain learners' motivation**?
4. What are some **frustrations and challenges** for instructors when they design MOOCs?

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METHOD

Participants Recruitment

1. **366 MOOCs instructors from institutions in South America** were identified from major MOOCs websites (i.e., Coursera, EdX, FutureLearn)
2. A **bilingual survey** in English and Spanish was distributed through emails to these instructors to collect demographic information, understanding towards SDL, and screen participants.
3. The criteria for selecting these participants were that they should have **designed at least one MOOC**.
4. **44 survey responses were collected, and 11 instructors accepted the interview invitation.**

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METHOD

Participants Demographics

Name	Gender	Country	# of MOOCs taught
Alejandro	Male	Colombia	1
Bruno	Male	Argentina	more than 5
Christopher	Male	Colombia	2
Daniela	Female	Colombia	1
Echa	Female	Colombia	2
Felipe	Male	Brazil	1
Gavino	Male	Colombia	2
Hernán	Male	Brazil	4
Ignacio	Male	Colombia	1
Jorge	Male	Chile	3
Keiman	Male	Chile	1

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TENTATIVE FINDINGS

1. Self-Management

Key finding 1:
The most common way to support self-management is breaking down a long video (e.g., 30 mins) into short videos (e.g., 5 mins).

Quote 1: "Shorter videos instead of longer videos is better because you can ask questions about the specific topic, not the 30 minutes talking to the camera." (Bruno)

Quote 2: "If you do videos that are 20-min long, that's sad, but they are not going to last. If you do 5 videos of 3 minutes each, in comparison to one of 20 minutes, or something like that, it's gonna be different." (Echa)

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TENTATIVE FINDINGS

Self-Management

Key finding #2: Many of them did not help with **goal setting** for students, but said students to do so. About half of them mentioned writing clear learning objectives is important so that students know what to expect and give students directions.

Quote: "*No, I definitely did not design the MOOC with that in mind. And I guess within class, it's very seldom that you find the student that wants to go beyond the core class requirements….I should incorporate complimentary MOOCs that they like to take to direct them to online material that might be of their interests.*" (Keiman)

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TENTATIVE FINDINGS

Self-Monitoring

Key finding: Reflection questions, progress bar that shows completion, quizzes, and peer-to-peer evaluations, and forums are designed for students to self-monitor their learning.

Quote 1: "*...progress bars, like a roadmap, of course, completion. So you know where you are in each way you can saw. Yes, I think most of those tools we have.*" (Felipe)

Quote 2: "*Oh, in terms of monitoring their learning, what we have is a single material. I have a quiz associated with it, and they only progress in the course if they fer 80% of the quiz correct.*" (Hernán)

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TENTATIVE FINDINGS

Motivation

Key finding: About half of the interviewees mentioned that they make efforts to motivate students by **designing interactive elements** (e.g. peer-to-peer interaction, pop-out quizzes in the video), but the gamification features are limited.

Quote 1: "*They started like, okay, 'did you know that?' And you needed to click (the answers) in order to let it (the feedback) pop out, and then get more information….They made it definitely more interactive than just a reading a book or an article.*" (Alejandro)

Quote 2: "*We manage motivation with a lot of visual aids, just like dynamics, not like try to make like short videos, show something to make a question, something have to interact and come back and give answer to the question, see if you fei it right or not.*" (Daniela)

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TENTATIVE FINDINGS

Professional Development

Key finding: Almost all the teachers received a certain level of **training** or facilitation from their home institutions on **editing videos**. They indicated that working in a team with instructional designers or technicians is crucial.

Quote 1: "*The university has a recording studio, with two employees working there. They recorded the video and did small editing, so that's a very good support.*" (Hernán)

Quote 2: "*I had a lot of supports on the recordings, and tutoring my materials of my actual physical course, and then like how to translate the specific activities to make it adapt to MOOCs.*" (Jorge)

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TENTATIVE FINDINGS

Interesting Perspectives

1. Students need to feel the **content** is **relevant** to their life can be motivated, which aligns with previous studies on **major motivations to take MOOCs.**
2. Some **instructors collaborate with European instructors** to teach MOOCs, **teaching styles** differ from South American styles and so need students to adapt.
3. Some South-American-based MOOCs platforms are more adapted to their culture (i.e., aesthetic, gamification features, etc.).

One instructor mentioned he felt lonely because not many people in South America worked on designing MOOCs and he could not find more accessible support when designing MOOCs.

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SIGNIFICANCE

Fill in Research Gaps

- **Less than 1%** of the scientific literature on MOOCs has been centered in the South American region (Veletsianos & Shepherdson, 2016).
- Existing research on MOOCs in South America has primarily employed **quantitative research methods** (Sánchez & Reyes-Rojas, 2019; Veletsianos & Shepherdson, 2016; Zhu, Sari, & Bonk, 2018).
- While the majority of MOOCs research focused on students' learning, recent research indicated that designing MOOCs is **challenging for instructors** because of MOOCs' massiveness and openness (Sari et al., 2020).

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Thank you!

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Study #5. SDPD

Exploring Self-Directed Professional Development (SDPD): From Tango Enthusiasts to Tango Instructors

Zixi Li, Xiaoying Zheng, Carrie Feng, and Curtis J. Bonk (2023)

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Self-directed professional development (SDPD)

- Professional development is an educational practice that improves **job performance** (Mizell, 2010).
- **Not** all the teachers in different fields receive adequate PD support from education systems (Mushayikwa & Lubben, 2009).
- Teachers are likely to initiate self-directed professional development (SDPD), when minimal PD is provided by formal education systems.
- Existing studies focus on SDPD in formal education, such as high school math teachers' SDPD; scant research is conducted with amateurs.

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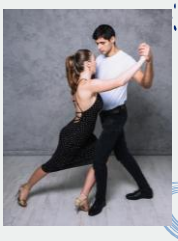
Why Argentine tango?

1. Learning dance is increasingly popular.
2. Argentine tango is hard to teach because it requires improvisation and critical thinking while lacking instructor training programs.
3. Researcher is an insider of the community.



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Self-directed professional development (SDPD)

- SDPD is a type of **self-directed learning (SDL)** that is performed by instructors toward their PD (Tembe, 2011).
- SDPD on teaching is one of the critical channels for teachers as they take the **initiative** and have a **desire** to learn (Van Eekelen et al., 2006).
- However, the spotlight has been always on professional teachers, leaving out the valuable experience of **highly-motivated amateur teachers**, who have even less institutional support compared to formal teachers.

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Research Question

- How do tango instructors **self-manage** their goals, time, and resources toward self-directed professional development?
- What **self-monitoring** strategies are employed by tango instructors to overcome challenges and frustrations related to their professional development?
- What **motivating factor**s underpin the decisions of tango instructors to self-directed grow their professions as instructors?

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Overview

This study is based on an explanatory sequential mixed methods design (Ivankova et al., 2006; Creswell & Plano Clark, 2007) to investigate SDPD from tango instructors' perspectives. The data collection process included:

1) an online survey with tango teachers distributed through Qualtrics;

2) one-to-one interviews with 21 instructors through Zoom;

The survey data was analyzed using descriptive statistics. Individual interviews were analyzed through thematic analysis (Braun & Clarke, 2012).

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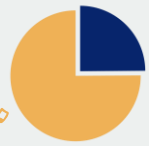
Demographics

Participants



Dancers only	249
Instructors	62

Tango Experience

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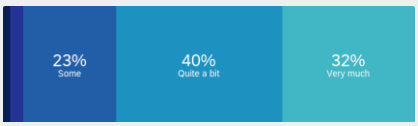
Perception

More than 70% of instructors agree teaching tango is challenging.



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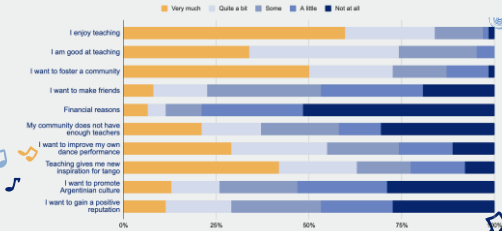
RQ1: Motivation



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RQ1: Motivation

The major motivation to teach tango are the enjoyment of teaching and community building.

- "There is a joy around teaching, it's really fulfilling. People are really happy to learn something new. You're really happy when you're like you set a class, and then you see, like from the beginning to the end, and people have changed."
- "I teach because I want to expand our community and share my love of Argentine Tango. Yet, I feel unworthy of teaching but for the realization that it is necessary to step up to teach, encourage, and share in order to grow our small tango community."

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RQ1: Motivation

Interview data revealed that motivation could be changed over time. Impressively, 13 of the 21 participants claimed that their entering motivation to start teaching is different from their motivation to continue teaching.

- "I think at the beginning, like it was [I] just wanted to be part of the club. You know what I mean, like. I really wanted to be, like I thought these people who were practicing tango teachers and professionals were just, I don't know just amazing and cool and beautiful, and fun and gentle and skillful people that I wanted to be like them. I wanted to kind of have access to that world. I wanted to dance with them, you know. I wanted to just really be part of that world."
- "Nowadays, it's definitely changed. I think I've grown to enjoy sharing my knowledge and teaching other people and helping other people along in their journey and the social side of it"

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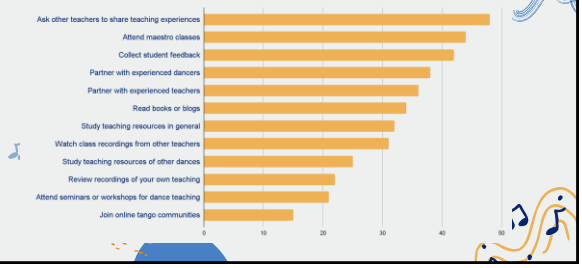
RQ2: Self-management



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RQ2: Self-management

Tango instructors primarily use their prior teaching experiences, and self-reflection as a student, as well as other teachers in the community as resources to self-manage their learning and resolve challenges.

- In fact, 16 of 21 instructors have prior teaching and coaching experiences in formal schooling, nursing, sports, other dance forms, etc.

"We know when we have met a good teacher, we know we have a bad teacher, and it's almost independent of the subject, right? And I would say that so those things I feel almost all independent of this specific thing taught. I think that there are some stuff that transfer is over as well as like, they're both kinda heady topics, even though tango is like a movement-based dance, there's a lot of like theory that the students get."

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RQ2: Self-management

- Another finding regarding teaching resources revealed from the interview data but not indicated through the survey was instructors' self-reflections based on their tango learning experiences.

"I like taking classes with other teachers. It's always learning. I learn [teaching] by taking classes with them. I'm a student; and as a student, I judge their teaching, like is it clear to me? Am I understanding it? And then I might think, "well, I would do it differently", or "I like that, that works" So from taking classes with other teachers, I also learn how to teach."

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RQ2: Self-management

- Eight interviewees also confirmed that a community of teachers that provides them opportunities to discuss teaching both serves as a critical self-management resource that supports teaching improvement as well as plays an important role in motivating instructors.

"I talk to other teachers like I will frequently sit down and talk to them. I try to get my information vetted. so I talked to colleagues but I don't have any formal education in teaching."

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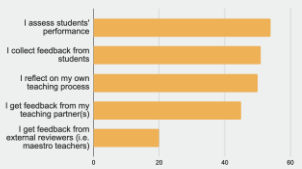
RQ3: Self-monitoring

Self-monitoring is difficult to achieve due to a lack of metrics and so relies on instructors' reflections and indirect assessments based on students' performance.



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RQ3: Self-monitoring

- Interview participants also indicated that it is difficult to self-evaluate if their teaching is improved or not because there is a fast student turn-around in a leisure learning context and there are no objective metrics for self-assessment.

"When I teach, I teach different groups. So at this time, next weekend, it is people who have been dancing for ten years, and maybe next time it might be a beginner's course. So it's difficult to evaluate if I get better." Julia also offered, "I don't know. I'm sure that depends on the person [and] on the student. I don't think there's something super-objective to say about that."

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RQ3: Self-monitoring

- Twelve interviewees suggest that they assess their teaching as critical self-reflection.

"I know my teaching has improved when changes were made, when I've no longer taught the same thing [in] the same way. Or I know my teaching has improved when I'm teaching different things than I usually taught."

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RQ3: Self-monitoring

- Nine interviewees suggested that they knew their teaching was improved by observing students' performance.

"Assessing progress and setting goals is a moving target. I know I'm getting better when I see my students improving in terms of their awareness, their enthusiasm, their independence, I like empowering them as learners, so that they're looking to dig deeper. To me that's the most exciting thing."

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Manuscript in Review

Li, Z., Feng, C., Zheng, X., & Bonk, C. J. (2025, online first). Exploring self-directed professional development (SDPD): From hobbyists to acknowledged tango teachers. *Professional Development in Education*, 1-25. https://doi.org/10.1080/19415257.2025.2495359

Li, Z., Zheng, X., Feng, C., Bonk, C. J. (in press). Investigating self-directed learning in adult tango dancers: The strategies to pursue passion. *Adult Education Quarterly*.

Li, Z., Zheng, X., Bonk, C. J., & Feng, C. (in review). Dancing at a distance: Exploring emergency remote teaching through the eyes of Argentine tango teachers. *Research in Dance Education*.

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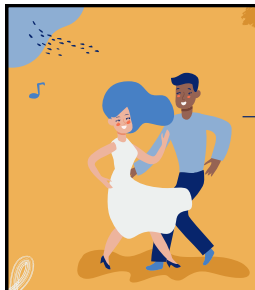

Thank you!

Have more questions?

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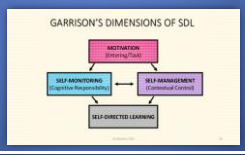
Study #6 (Meina Zhu & Curt Bonk)
MOOCs Instructional Design to Facilitate Participants' Self-Directed Learning



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Key Terms

Self-directed learning (SDL) (Garrison, 1997)

(1) self-management

(2) self-monitoring

(3) motivation

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Research Purpose

- **The purpose is to inform instructors or instructional designers and MOOC providers of the current practices of designing MOOCs to facilitate learners' SDL.**

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Research Questions

1. **How do MOOC instructors perceive participant SDL skills?**
2. **How do MOOC instructors perceive their facilitation of participant SDL skills?**
3. **How do instructors design and deliver MOOCs to facilitate participant SDL skills?**

a. How is technology being used by MOOC instructors to support the development of participant SDL skills?
b. What technology features or functions do MOOC instructors want to have to improve their facilitation of MOOC participant SDL skills?

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Data Collections

Survey:

- Volunteer sampling (Creswell & Clark, 2017)
- 198 instructors responded to the survey (10% response rate)

Interview:

- Homogeneous purposeful sampling (Creswell & Clark, 2017; Patton, 2002)
- Maximal variation sampling (Creswell & Clark, 2017)
- 22 interviewees

MOOC review:

- Reviewed 22 interviewees' MOOCs

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Research Participants

Pseudonym	Country	Subject area	Platform	Gender	No. of O/B	No. of M	Mode of the M
Lucas	US	Social science	edX	M	0	1	I without T
Branden	US	Education	Udacity	M	0	5 or more	Self-paced
Logan	US	Literacy and Language	Coursera	M	5 or more	5 or more	I with T
Emma	US	Literacy and Language	Coursera	F	2	1	Self-paced
Jason	US	Science	edX	M	1	1	I with T
Jackson	US	Medicine and health	Coursera	M	5 or more	1	Self-paced
Samuel	US	Education	FutureLearn	M	4	3	Self-paced
Hannah	US	Education	Blackboard	F	5 or more	1	I with T
Ashley	US	Education	EdX	F	0	5 or more	I with T
Andrew	UK	Art	FutureLearn	M	0	3	I with T
Emily	UK	Medicine and health	FutureLearn	F	2	2	I with T
Aiden	UK	Social science	FutureLearn	M	0	1	Self-paced
Henry	UK	Social science	FutureLearn	M	0	1	Self-paced
Joseph	UK	Medicine and health	FutureLearn	M	1	1	Self-paced
Joshua	UK	Literacy and language	FutureLearn	M	2	2	I with T
Mason	Australia	Education	Coursera	M	5 or more	1	I with T
Ethan	Australia	Business	Coursera	M	3	1	I without T
Ben	Australia	Social science	edX	M	1	1	I with T
Paul	France	Computer Science	Coursera	M	1	1	I with T
Fernando	Belgium	Research methods	Blackboard	M	5 or more	3	I with T
Jacob	Netherland	Science	Coursera	M	0	1	I with T
Dylan	Israel	Science	Coursera	M	5 or more	3	I without T

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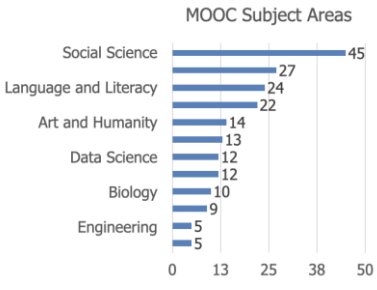
Research Context



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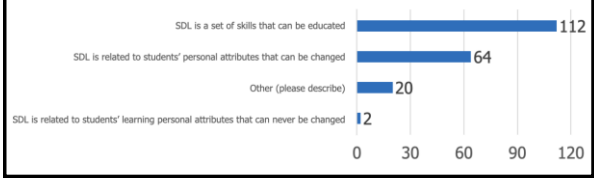
RQ1 Finding: Perceptions of SDL

A majority of the MOOC instructors thought that these skills or attributes are not static, and that SDL as a set of skills can be educated or students' personal attributes that can be changed.



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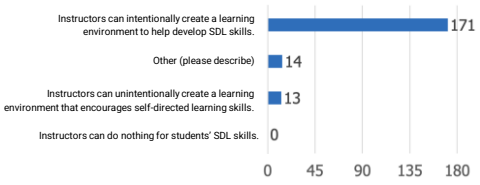
RQ2 Finding: Perceptions of Facilitation of SDL

Most of MOOC instructors thought that they can intentionally or unintentionally facilitate students' SDL.



181

RQ2 Finding: Perceptions of Facilitation of SDL

Ashely emphasized the importance of both instructors' facilitation and students' SDL skills. She said:

"The participant has a lot of flexibility on how they approach the content. I mean, obviously, we have things like assignments. We have things like online forums. And there're ways that we scaffold the learning experience. But there still is a lot of choice for the learner."

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RQ3 Finding: Strategies to Facilitate SDL

Students' intrinsic motivation plays an important role. However, extrinsic motivation provided by the MOOCs might help transfer extrinsic motivation to intrinsic motivation.

Motivations	Strategies
Entering motivation	MOOC instructors helped students **identify the needs and goals of learning** and sense of achievement.
Task motivation	MOOC instructors motivated students through instruction, learning materials, feedback, and learning community.

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RQ3 Finding: Strategies to Facilitate SDL

Both internal feedback and external feedback were provided to help students' self-monitoring.

Self-monitor		Strategies
Internal feedback	Cognition	MOOC instructors provided quizzes for self-assessment, tutorial on technology use, learning advice, navigation of the course, progress indicators, resources, and instructional modeling, etc.
	Meta-cog	MOOC instructors encouraged students to reflect and think critically by providing reflection questions and building learning community.
External feedback		MOOC instructors, teaching assistants, and peers were involved in providing external feedback.

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RQ3 Finding: Strategies to Facilitate SDL

They helped students' self-management concerning setting learning goals, time management, resources and support management although among the three elements of SDL, MOOC instructors had less control over students' management.

Self-management	Strategies
Enactment of learning goals	Providing discussion questions, reflections, survey, and appreciation students' learning goals.
Time management	Providing time frame, progress indicator, short learning units, and flexible timeline.
Management of resources and support	Providing flexible learning resources, peer-assessment, accessibilities, clear expectations, and short learning units.

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RQ3.a Finding: Tech Use for SDL

Synchronous communication technologies

Google Hangouts  YouTube Live 

Asynchronous communication technologies

Discussion forum 

Flickr  Blog  Slackbot 

Multimedia (e.g., video and graphics)

Feedback technologies

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Discussion

- **SDL can be Changed**
- **MOOC Instructors can Facilitate SDL**
- **Strategies to Facilitate SDL**: A variety of strategies can be used to facilitate student SDL skills in terms of motivation, self-monitor, and self-management.
- **Tech for SDL**: Tech plays a vital role in facilitating SDL skills.
- **Tech expectations**: Adaptive learning systems, artificial intelligent systems, and learning analytics were expected to have to support SDL.

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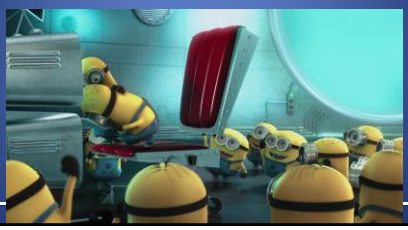
Do we have time for another study?



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Study #7. Zhu, Bonk, & Berri

MOOC Learners and SDL

Zhu, M., Bonk, C. J., & Berri, S. (2022). Fostering self-directed learning in MOOCs: Motivation, learning strategies, and instruction. Online Learning

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Research Questions

1. **What motivated individuals to enroll in MOOCs?**
2. **What were the learning strategies that helped learners' SDL in MOOCs?**
3. **What were the design and instructional elements of MOOCs that facilitated learners' SDL?**

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Study #7 Participants

MOOC Learners and SDL

Zhu, M., Bonk, C. J., & Berri, S. (2022). Fostering self-directed learning in MOOCs: Motivation, learning strategies, and instruction. Online Learning

Table 1
Fifteen Interviewees' Demographic Information

Pseudonyms	Gender	Countries	Occupations
Abdulrahman	M	Turkey	Teacher
Ali	M	Yemen	Student
Alina	F	The UK	Student
Betty	F	Albania	Engineer
Chang	M	Canada	Athlete
Dan	M	Mexico	Professor
Helen	F	Indonesia	Administrative assistant
Jacob	M	The US	Retired management consultant
Jane	F	The US	Educator
Joe	M	The UK	Retired engineer
Melena	F	Germany	Student
Mostapha	F	Egypt	Student
Sandy	F	The US	Student
Sarah	F	The US	Between jobs
Sophia	F	The Netherlands	Retired office manager

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RQ1. Intrinsic Motivation

Jacob, a retired management consultant from the US, expressed his motive behind enrolling in MOOCs as strictly intrinsic, "there's no reward. I'm retired. It's really just [that] I get very interested in topics. I realize holes in my knowledge and try to fill the holes."

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RQ1: Extrinsic Motivation

Besides educational purposes, some participants enrolled in MOOCs to help with their career development. For example, Sarah, who received her Ph.D. degree and was in between jobs at the time, selected topics such as anatomy, MatLab software, oncology, biology, and neuroscience. Sarah explained the purpose for taking these types of MOOCs was:

> To acquire and improve my knowledge as a medical physicist…I consider my resume when selecting MOOC. I choose courses related to my professional field to add them to my curriculum; otherwise, there would be a period without being in contact with my profession.

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RQ1. Extrinsic Motivation

Besides educational purposes, some participants enrolled in MOOCs to help with their career development. For example, Sarah, who received her Ph.D. degree and was in between jobs at the time, selected topics such as anatomy, MatLab software, oncology, biology, and neuroscience. Sarah explained the purpose for taking these types of MOOCs was:

To acquire and improve my knowledge as a medical physicist…I consider my resume when selecting MOOC. I choose courses related to my professional field to add them to my curriculum; otherwise, there would be a period without being in contact with my profession.

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RQ2. Learning Strategies

RQ2: What were the Learning Strategies that Helped Learners' SDL in MOOCs?

Dan considered the progress bar to be a good indication of his progress, and it also created a healthy competition among the learners. Seeing where he was at in the course compared to the other learners gave him a push. He stated,

"All the progress bar with milestones, with a small quiz that doesn't count for the evaluation, but they're good for you to check if I'm really learning. And, for example, I like when you have these kinds of nice competition[s], right. Everyone starts a MOOC at the same time, but you see that these weeks you progress faster than other members in the MOOC."

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RQ2: Learning Strategies

Note taking: Dan stated that his main learning strategy was notetaking: "I always have my little notebook for the MOOC that I'm working on or I'm studying. And whatever videos or whatever exercise that I was doing, I was always taking notes…"

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RQ2: Learning Strategies

To help her self-monitoring, Melena noted how enriching her knowledge and knowing new things that she did not know before, along with doing well on the quizzes and tests, were vital indications of her progress. She explained, "Usually, there is a test after each week. Performing it, I can see in which topic I have the biggest gaps, or I got it well. Moreover, if I apply it in other areas of my life and it can also be seen then."

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RQ 3: Design Element

One participant, Helen, believed that authentic examples, resources, and visuals that some instructors demonstrated in their courses helped maintain her curiosity. In our interview, she explained:

> When I studied the brain, the professor showed the real brain. Like, she took us to the laboratory and showed us how the brains, how they did it, they did things in the laboratory. So, I find it fascinating. I find it very interesting. Even though for the test I try to read, but for understanding and looking at the real thing, the visualization is very good.

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Activity #8 (Paired): What are some ways to foster SDL?

199

Top 10 Strategies to Facilitate SDL in MOOCs

1. Helping students set their own learning goals.
2. Building learning community.
3. Offering immediate feedback.
4. Embedding quizzes for self-assessment.
5. Providing progress indicators.
6. Providing reflection questions.
7. Designing short learning units.
8. Providing flexible timelines.
9. Highlighting estimated time frames.
10. Making available optional learning materials.

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Zhu, M., & Bonk, C. J. (2022). Guidelines and strategies for fostering and enhancing self-directed online learning. Open Learning: The Journal of Open, Distance and e-Learning. DOI: https://doi.org/10.1080/02680513.2022.2141105

15 guidelines for promoting SDL in MOOCs and similar large scale open education environments:

(1) Helping students set their own learning goals.
(2) Encouraging learners to make plans.
(3) Offering flexible timelines.
(4) Highlighting estimated time frames.
(5) Embedding tasks and activities to form a learning community.
(6) Supplying timely and constructive feedback.
(7) Embedding quizzes for self-assessment.
(8) Crafting visuals showing work progress and tasks completed.
(9) Providing reflection questions.
(10) Designing time-sensitive learning units.
(11) Making available optional learning materials and self-selection options.
(12) Creating a structured learning environment, including weekly overviews.
(13) Making sure that lectures are recorded with captions added.
(14) Inserting application exercises for putting the course material into practice.
(15) Using gamification to support SDL.

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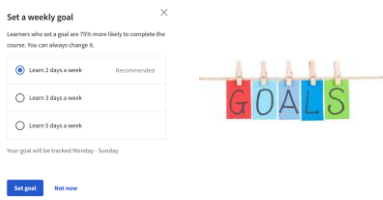
#1. Helping students set their own learning goals



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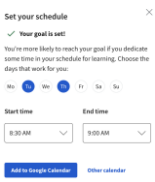
#2. Encouraging learners to make plans



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#3. Offering flexible timelines

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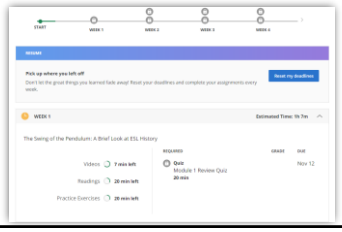
#4. Highlighting estimated time frames



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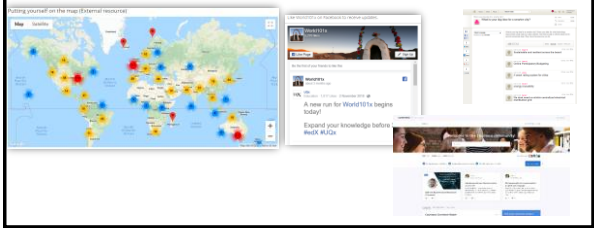
#5. Embedding tasks and activities to form a learning community



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#6. Supplying timely and constructive feedback

Quiz

I had to delete the code for graph before I could get values for posterior_Mean and posterior_sd. Can't I get all values, and graph simultaneously. I first saw th...

Staff reply

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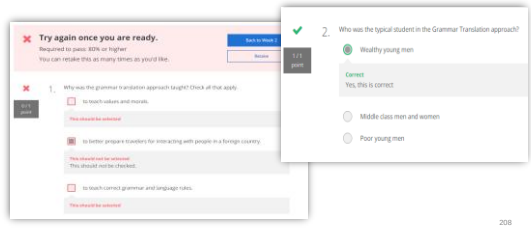
#7. Embedding quizzes for self-assessment



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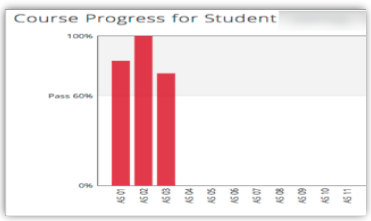
#8. Crafting visuals showing work progress and tasks completed



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#9. Providing reflection questions

210

#10. Designing time-sensitive learning units

- **Video:** Introduction to Regression 6 min
- **Video:** Introduction: Basic Least Squares 6 min

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#11. Making available optional learning materials and self-selection options

- **Reading:** BASIC: A Blanket Around the Earth 10 min
- **Reading:** ADVANCED: A Blanket Around the Earth 10 min

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#12. Creating a structured learning environment, including weekly overviews

WEEK 1 - OVERVIEW & CONSIDERATIONS FOR STATISTICAL MODELING

2 min of videos left **47 min** of readings left **1** graded assignment left

We begin this third course of the Statistics with Python specialization with an overview of what is meant by "fitting statistical models to data." In this first week, we will introduce key model fitting concepts, including the distinction between dependent and independent variables, how to account for study designs when fitting models, assessing the quality of model fit, exploring how different types of variables are handled in statistical modeling, and clearly defining the objectives of fitting models.

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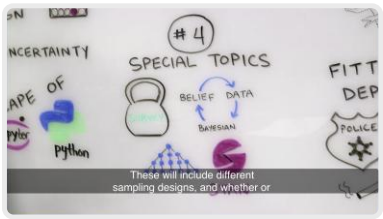
#13. Making sure that lectures are recorded with captions added



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#14. Inserting application exercises for putting the course material into practice

Week 3 Assessment

This Jupyter Notebook is auxiliary to the following assessment in this week. To complete this assessment, you will complete the 5 questions outlined in this document and use the output from the python cells to answer them.

Run the following cell to initialize your environment and begin the assessment.

Question 1: What is clustered data? (You'll answer this question within the quiz that follows this notebook)

215

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#15. Using gamification to support SDL

216

216

Related Publications

Zhu, M., Bonk, C. J., & Doo, M.-Y. (2020). Self-directed learning in MOOCs: Exploring the relationships among motivation, self-monitoring, and self-management. *Educational Technology Research and Development* (ETR&D), *68*(5). 2073-2093. DOI 10.1007/s11423-020-09747-8

Zhu, M., & Bonk, C. J. (2019). Designing MOOCs to facilitate participant self-monitoring for self-directed learning. *Online Learning, 23*(4), 106-134. doi:10.24059/olj.v23i4.2037

Zhu, M., & Bonk, C. J. (2020). Technology tools and instructional strategies for designing and delivering MOOCs to facilitate self-monitoring of learners. *Journal of Learning for Development, 7*(1). 31-45.

217

217

Related Publications

Doo, M. Y., Zhu, M., & Bonk, C. J. (2023). Influences of self-directed learning on learning outcomes in MOOCs: A meta-analysis. *Distance Education, 44*(1), 86-105. https://doi.org/10.1080/01587919.2022.2155618

Doo, M.-Y. & Zhu, M. (2023). A meta-analysis of effects of self-directed learning in online learning. *Journal of Computer Assisted Learning*. http://doi.org/10.1111/jcal.12865

Zhu, M. (2021). Enhancing MOOC learners' skills for self-directed learning. *Distance Education. 42*(3), 441-460 Doi: 10.1080/01587919.2021.1956302.

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Related Publications

Bonk, C. J., & Zhu, M. (2023, online first). On the trail of self-directed online learners. *ECNU Review of Education*. https://doi.org/10.1177/20965311231169795

Zhu, M., & Bonk, C. J. (2022, online first). Guidelines and strategies for fostering and enhancing self-directed online learning. Open Learning: The Journal of Open, Distance and e-Learning. DOI: https://doi.org/10.1080/02680513.2022.2141105

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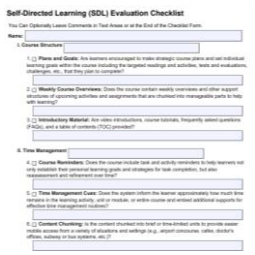
The SDL Checklist (in press)


Self-Directed Learning (SDL) Evaluation Checklist

You Can Optionally Leave Comments in Text Areas or at the End of the Checklist Form.

Name:

I. Course Structure

1. ☐ **Plans and Goals:** Are learners encouraged to make strategic course plans and set individual learning goals within the course including the targeted readings and activities, tests and evaluations, challenges, etc., that they plan to complete?

2. ☐ **Weekly Course Overviews:** Does the course contain weekly overviews and other support structures of upcoming activities and assignments that are chunked into manageable parts to help with learning?

3. ☐ **Introductory Material:** Are video introductions, course tutorials, frequently asked questions (FAQs), and a table of contents (TOC) provided?

II. Time Management

4. ☐ **Course Reminders:** Does the course include task and activity reminders to help learners not only establish their personal learning goals and strategies for task completion, but also reassessment and refinement over time?

5. ☐ **Time Management Cues:** Does the system inform the learner approximately how much time remains in the learning activity, unit or module, or entire course and embed additional supports for effective time management routines?

6. ☐ **Content Chunking:** Is the content chunked into brief or time-limited units to provide easier mobile access from a variety of situations and settings (e.g., airport concourse, cafe, doctor's office, subway or bus systems, etc.)?

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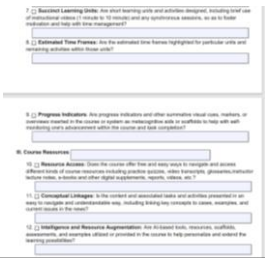
The SDL Checklist (in press)


7. ☐ **Succinct Learning Units:** Are short learning units and activities designed, including brief use of instructional videos (1 minute to 10 minute) and any synchronous sessions, so as to foster motivation and help with time management?

8. ☐ **Estimated Time Frames:** Are the estimated time frames highlighted for particular units and remaining activities within those units?

9. ☐ **Progress Indicators:** Are progress indicators and other summative visual cues, markers, or overviews inserted in the course or system as metacognitive aids or scaffolds to help with self-monitoring one's advancement within the course and task completion?

III. Course Resources

10. ☐ **Resource Access:** Does the course offer free and easy ways to navigate and access different kinds of course resources including practice quizzes, video transcripts, glossaries,instructor lecture notes, e-books and other digital supplements, reports, videos, etc.?

11. ☐ **Conceptual Linkages:** Is the content and associated tasks and activities presented in an easy to navigate and understandable way, including linking key concepts to cases, examples, and current issues in the news?

12. ☐ **Intelligence and Resource Augmentation:** Are AI-based tools, resources, scaffolds, assessments, and examples utilized or provided in the course to help personalize and extend the learning possibilities?

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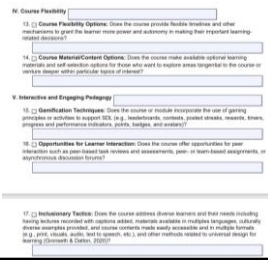
The SDL Checklist (in press)


IV. Course Flexibility

13. ☐ **Course Flexibility Options:** Does the course provide flexible timelines and other mechanisms to grant the learner more power and autonomy in making their important learning-related decisions?

14. ☐ **Course Material/Content Options:** Does the course make available optional learning materials and self-selection options for those who want to explore areas tangential to the course or venture deeper within particular topics of interest?

V. Interactive and Engaging Pedagogy

15. ☐ **Gamification Techniques:** Does the course or module incorporate the use of gaming principles or activities to support SDL (e.g., leaderboards, contests, posted streaks, rewards, timers, progress and performance indicators, points, badges, and avatars)?

16. ☐ **Opportunities for Learner Interaction:** Does the course offer opportunities for peer interaction such as peer-based task reviews and assessments, peer- or team-based assignments, or asynchronous discussion forums?

17. ☐ **Inclusionary Tactics:** Does the course address diverse learners and their needs including having lectures recorded with captions added, materials available in multiples languages, culturally diverse examples provided, and course contents made easily accessible and in multiple formats (e.g., print, visuals, audio, text to speech, etc.), and other methods related to universal design for learning (Donnelli & Dalton, 2020)?

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222

The SDL Checklist (in press)

223

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Related Publications

Bonk, C. J., Zhu, M., & Li, Z. (2023). Self-direct to learn, self-direct to live: A checklist to successfully navigate this self-directed learning world. *GOTEC Research-to-Practice*. GOTEC Learning Resources. https://gotec.cehd.gmu.edu/assets/docs/gotec/Bonk%20Zhu%20Li%20-%20Self-Direct%20to%20Learn.pdf (Note: SDL Checklist available: https://curtbonk.com/pdfs/Self-Directed-Learning-(SDL)-Evaluation-Checklist.pdf)

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Recent Publications

1. Li, B., Kou, X., & Bonk, C. J. (2023). Embracing the disrupted language teaching and learning field: Analyzing YouTube content creation related to ChatGPT. *Languages, 8*, 197. https://doi.org/10.3390/languages8030197

2. Li, B., Bonk, C. J., & Kou, X. (2023). Exploring the multilingual applications of ChatGPT: Uncovering language learning affordances in YouTuber videos. *International Journal of Computer-Assisted Language Learning and Teaching (IJCALLT), 13(1)*, 1-22. http://doi.org/10.4018/IJCALLT.326135

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Recent Publications

3. Li, B., Wang, C., Bonk, C. J., & Kou, X. (Online First). Exploring inventions in self-directed language learning with generative AI: Implementations and perspectives of YouTube content creators. *TechTrends*.

4. Li, B., Bonk, C. J., Wang, C., & Kou, X. (2024). Reconceptualizing the self-directed language learning in the era of generative AI: An exploratory analysis of language learning. *IEEE: Transactions on Learning Technology, 17*, 1515-1529.

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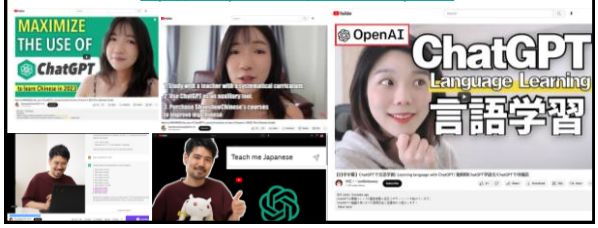
June 17, 2023, YouTubers using ChatGPT

How to MAXIMIZE the use of ChatGPT's current functions to learn Chinese in 2023 (The Ultimate Guide)

ShuoshuoChinese说说中文

https://www.youtube.com/watch?v=TzFepHKifGo



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June 17, 2023, YouTubers using ChatGPT

Is ChatGPT Better Than Human Chinese Teachers Now? Rita Mandarin Chinese

https://www.youtube.com/watch?v=TzFepHKifGo

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June 17, 2023, YouTubers using ChatGPT

Can ChatGPT Replace a Cantonese Teacher? How to Use ChatGPT to Learn Cantonese | Dope Chinese

Dope Chinese with Gloria

https://www.youtube.com/watch?v=x5yAG3qksI4

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RQ1: What is the focus of the discussion and demonstrations by the YouTube content creators of ChatGPT in language education?

1c. What are common topics & themes present in these discussions and demos?

Theme	Codes
Introduce ChatGPT	• Natural / human-like conversation • Ask it questions and it gives you answers • Possessing extensive knowledge
Roles of ChatGPT	• Virtual Assistant • Tutor [122] [26] • On-demand English teacher [19] • Personal writing assistant • Research Assistance [46] • Virtual friend • Multi-language support [107] • Language genius [83] • Language coach [89] • Teacher's replika [85]
Hands-on Demonstration	• Techniques & Tips & Strategies for learners • Technique & Tips & Strategies for teachers • Common mistakes to avoid when using ChatGPT for language learning • The innovative way of using ChatGPT • Testing ChatGPT's ideology on language learning
Attitudes toward ChatGPT	• A game changer for language learning [81] • High-Tech Plagiarism [47]
Solutions	• Cannot replace language teachers [65] [102] • Integrated with other tools (e.g., Duopl., YoungBoh, and Duolingo) • Need for empathy and assistance • Pedagogy considerations

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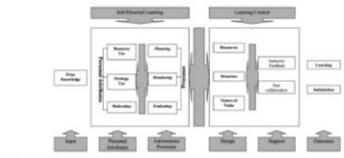
4. Li, B., Bonk, C. J., Wang, C., & Kou, X. (2024). Reconceptualizing the self-directed language learning in the era of generative AI: An exploratory analysis of language learning. *IEEE: Transactions on Learning Technology, 17*, 1515-1529.



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4. Li, B., Bonk, C. J., Wang, C., & Kou, X. (2024). Reconceptualizing the self-directed language learning in the era of generative AI: An exploratory analysis of language learning. *IEEE: Transactions on Learning Technology, 17*, 1515-1529.

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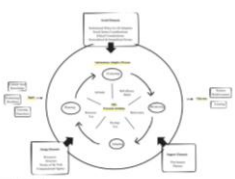
4. Li, B., Bonk, C. J., Wang, C., & Kou, X. (2024). Reconceptualizing the self-directed language learning in the era of generative AI: An exploratory analysis of language learning. *IEEE: Transactions on Learning Technology, 17*, 1515-1529.



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Recent Publications

5. Li, Z., Wang, C., & Bonk, C. J. (2024). Exploring the utility of ChatGPT for self-directed online language learning. *Online Learning, 28*(3), 157-180.

6. Wang, C., Li, Z., & Bonk, C. J. (2024, online first). Understanding self-directed learning in AI-assisted writing: A mixed methods study of postsecondary learners. *Computers & Education: Artificial Intelligence, 10*, 1-10.

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5. Li, Z., Wang, C., & Bonk, C. J. (2024). Exploring the utility of ChatGPT for self-directed online language learning. *Online Learning*, *28*(3), 157-180. (276 survey respondents, 11 interviews in the USA)

In this study, we investigated the SDL practices facilitated by GenAI tools like ChatGPT following Garrison's (1997) SDL framework. Aligning with each dimension of Garrison's framework, namely, motivation, self-management, and self-monitoring, we examined the following research questions accordingly:

1. What motivates learners to utilize self-directed learning with ChatGPT?
2. How do language learners select and apply self-management strategies when utilizing ChatGPT in their language learning routines?
3. How do language learners employ self-monitoring strategies when using ChatGPT for language learning?

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5. Li, Z., Wang, C., & Bonk, C. J. (2024). Exploring the utility of ChatGPT for self-directed online language learning. *Online Learning*, *28*(3), 157-180. (384 survey responses and 10 semi-structured interviews**)**

Demographic Information Of Participants

Participant pseudonym	Age	Gender	Current education level	Target language	Frequency of using ChatGPT for language learning
Amelia	31	Female	Graduate degree	Spanish	Weekly
Bennett	31	Male	Graduate degree	Spanish	Daily
Chandler	41	Male	Graduate degree	Spanish	Weekly
Danielle	29	Female	Undergraduate	Hebrew	Weekly
Elliott	35	Male	Graduate degree	Spanish	Weekly
Fallon	40	Female	Undergraduate	Spanish	Weekly
Giovanni	45	Male	Undergraduate	Spanish	Daily
Howard	24	Male	Undergraduate	French	Weekly
Ivan	41	Male	Graduate degree	Brazilian Portuguese	Weekly

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5. Li, Z., Wang, C., & Bonk, C. J. (2024). Exploring the utility of ChatGPT for self-directed online language learning. *Online Learning*, *28*(3), 157-180. (276 survey respondents, 11 interviews in the USA)

Figure 1

Frequency Of Using ChatGPT To Facilitate Language Learning.

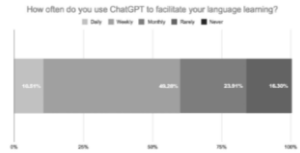

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Table 3

Coding Themes, Codes, And Examples of Excerpts

Themes	Codes	Examples of excerpts
Motivation	Initially motivated by people who used ChatGPT in the surrounding environment	"I talked to a friend who uses AI in place of actually speaking to a person one-on-one when learning a language. And she was talking about how her experiences are really positive, and she's learned a lot from it. And so I decided to kind of explore that and like, see how it goes."
	Motivated by ChatGPT's convenience for supporting independent learning	"But if I have a question where I'm stuck, I can ask ChatGPT. I don't have to rely on a study partner who may or may not know the answer."
	ChatGPT makes learning efficient by offering contextualized and point-to-point answers	"It's more contextual, like you can tell him, 'Hey I have a friend. We're not too close. I want to say this, how do I say it?' Like, it's the context behind it."
	Motivated by ChatGPT's rich linguistic affordances	"I can always ask how this grammar was structured, or why is this and not that, or why is this word instead of that word?"
Self-management	Set habitual learning routines	"I usually use it in the morning before I start working. And I'll usually use it for like 10 or 15 min or so [to] have a short conversation before I work."
	Prompt questions to align with learning goals	"I have found that the more detailed your question is, the better your answer and your

		outcome is."
	Validate information with other resources throughout the learning process	"I actually have a dictionary to consult if the word is correct. … I tend to even consult outside experts. I tend to use three two, [or] three things the most."
Self-monitoring	Know what aspects of language learning need to be improved	"So what I do with it mostly is try to validate some of what I have … the way I'll use ChatGPT is to look for better ways to write something."
	Compare the learning outcome with past learning experiences	"If I walk away from it feeling like I learned something… that's a bit of a victory that I'm doing well, and I'm learning something."
	Integrate multiple resources or tools for assessment	"I'll just start talking [to family members who speak Spanish] and they'll respond. So that shows me where I'm at at that point."

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5. Li, Z., Wang, C., & Bonk, C. J. (2024). Exploring the utility of ChatGPT for self-directed online language learning. *Online Learning*, *28*(3), 157-180. (384 survey responses and 10 semi-structured interviews**)**

Descriptive Statistics on Motivation Items

Statement Item	Mean	SD	Variance
I enjoy learning new information related to language through ChatGPT.	4.21	0.78	0.61
I have motivation to learn a language with ChatGPT.	4.01	0.93	0.86
I want to learn new ideas related to language learning brought up by ChatGPT.	3.94	0.99	0.98
I have a need to learn a language with ChatGPT.	3.43	1.22	1.49
I need to know the deeper reasons for the language feedback by ChatGPT.	3.41	1.13	1.28
I like to share my ChatGPT language learning experiences with others.	3.37	1.17	1.37

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5. Li, Z., Wang, C., & Bonk, C. J. (2024). Exploring the utility of ChatGPT for self-directed online language learning. *Online Learning*, *28*(3), 157-180. (384 survey responses and 10 semi-structured interviews**)**

Discussion

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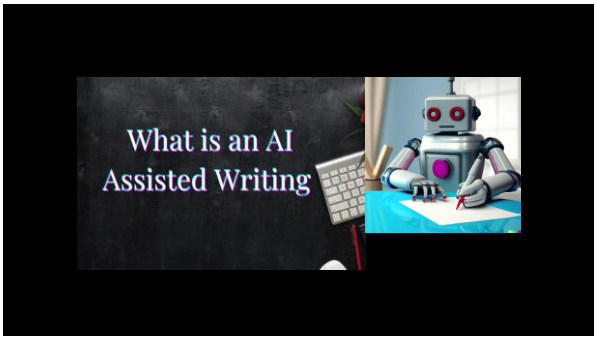
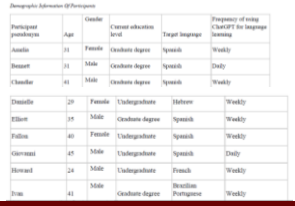


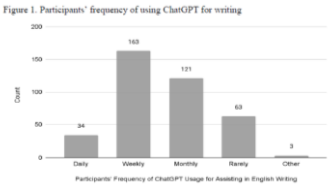
242

6. Wang, C., Li, Z., & Bonk, C. J. (2024). Understanding self-directed learning in AI-assisted writing: A mixed methods study of postsecondary learners. *Computers & Education: Artificial Intelligence*, *6*. https://doi.org/10.1016/j.caeai.2024.100247*Computers & Education: Artificial Intelligence*, *10*, 1-10. (384 survey responses and 10 interviews)



243

6. Wang, C., Li, Z., & Bonk, C. J. (2024, online first). Understanding self-directed learning in AI-assisted writing: A mixed methods study of postsecondary learners. *Computers & Education: Artificial Intelligence*, *10*, 1-10.



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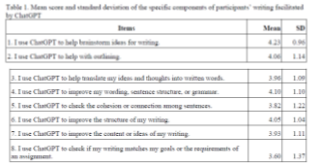
6. Wang, C., Li, Z., & Bonk, C. J. (2024, online first). Understanding self-directed learning in AI-assisted writing: A mixed methods study of postsecondary learners. *Computers & Education: Artificial Intelligence*, *10*, 1-10.



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6. Wang, C., Li, Z., & Bonk, C. J. (2024, online first). Understanding self-directed learning in AI-assisted writing: A mixed methods study of postsecondary learners. *Computers & Education: Artificial Intelligence*, *10*, 1-10.

Table 2. Mean score and standard deviation of the survey items related to participants' motivation

Items	Mean	SD
1. I have motivation to learn writing with ChatGPT.	3.85	1.08
2. I have a need to learn writing from ChatGPT.	3.28	1.34
3. I enjoy learning new information related to writing through ChatGPT.	3.97	0.94
4. I need to know the deeper reasons for the writing feedback provided by ChatGPT.	3.29	1.24
5. I like to share my ChatGPT learning experience about writing with others.	3.24	1.3

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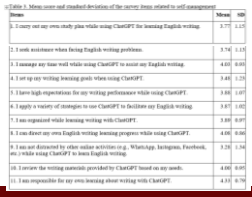
6. Wang, C., Li, Z., & Bonk, C. J. (2024, online first). Understanding self-directed learning in AI-assisted writing: A mixed methods study of postsecondary learners. *Computers & Education: Artificial Intelligence*, *10*, 1-10.



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6. Wang, C., Li, Z., & Bonk, C. J. (2024, online first). Understanding self-directed learning in AI-assisted writing: A mixed methods study of postsecondary learners. *Computers & Education: Artificial Intelligence*, *10*, 1-10.

Table 4. Mean score and standard deviation of items related to participants' self-monitoring

Items	Mean	SD
1. I critically evaluate new ideas related to writing learning provided by ChatGPT.	2.10	0.91
2. I ask follow-up questions regarding writing learning with ChatGPT.	2.09	1.00
3. I am able to integrate the writing knowledge I learned with ChatGPT with my work or life.	2.16	0.90

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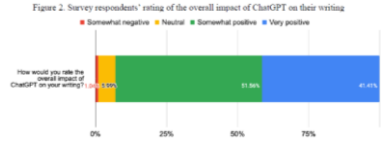
6. Wang, C., Li, Z., & Bonk, C. J. (2024, online first). Understanding self-directed learning in AI-assisted writing: A mixed methods study of postsecondary learners. *Computers & Education: Artificial Intelligence*, *10*, 1-10.

Figure 2. Survey respondents' rating of the overall impact of ChatGPT on their writing



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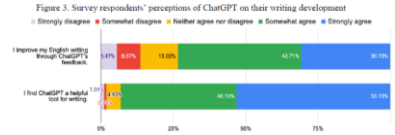
6. Wang, C., Li, Z., & Bonk, C. J. (2024, online first). Understanding self-directed learning in AI-assisted writing: A mixed methods study of postsecondary learners. *Computers & Education: Artificial Intelligence*, *10*, 1-10.

Figure 3. Survey respondents' perceptions of ChatGPT on their writing development



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Recent Publications on Duolingo

7. Li, Z., Bonk, C. J., & Zhou, C. (2024). Supporting learner's self-management for self-directed language learning: A study within Duolingo. *Interactive Technology and Smart Education*, *21*(3), 381-402.

8. Li, Z., & Bonk, C. J. (2025). Self-directed language learning with Duolingo in an out-of-class context. *Computer Assisted Language Learning*, *38*(3), 569-591. https://doi.org/10.1080/09588221.2023.2206874

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Manuscripts Currently in Review

9. Li, Z., Wang, C., & Bonk, C. J. (in press). Exploring ethical AI use in self-directed and formal learning: Learner perspectives through a FATE lens. *AI Enhanced Learning.*

10. Li, B., Zhang, Z., Lowell, V. L., Wang, C. & Bonk, C. J. (in review). Development and validation of the AI-SDL-PA Scale: Measuring personal attributes in AI-integrated self-directed language learning. *System.*

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9. Li, Z., Wang, C., & Bonk, C. J. (in press). Exploring ethical AI use in self-directed and formal learning: Learner perspectives through a FATE lens. *AI Enhanced Learning.*

Table 1. Demographic information of participants.

Participant pseudonym	Age	Gender	Current education level	Student status
Amelia	31	Female	Graduate degree	Full time
Bennett	31	Male	Graduate degree	Full time
Chandler	41	Male	Graduate degree	Full time
Danielle	39	Female	Undergraduate	Part time
Elliott	35	Male	Graduate degree	Full time
Fallon	40	Female	Undergraduate	Full time
Giovanni	45	Male	Undergraduate	NA
Howard	24	Male	Undergraduate	Full time
Ivan	41	Male	Graduate degree	Full time
Joshua	22	Male	Graduate degree	Full time

All 10 individual interviews were conducted and recorded through Zoom. Each interview approximately took 30 minutes to complete and they were transcribed verbatim.

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9. Li, Z., Wang, C., & Bonk, C. J. (in press). Exploring ethical AI use in self-directed and formal learning: Learner perspectives through a FATE lens. *AI Enhanced Learning.*

Table 2. Codebook themes and subthemes for ethical considerations of AI in education.

Themes	Subthemes
AI usage in education	• Informal Learning ○ Aligns with self-directed learning goals • Formal Learning ○ Institutional policies ○ Instructors' attitude and guidance ○ Learners' approach
Ethical considerations	• AI design ○ Accuracy of information ○ Adaptions to different subjects ○ Cultural inclusiveness • Learners' ethical usage ○ Fear for plagiarism ○ Worries of creating unfairness ○ Other • Factors influence ethical considerations ○ Assessment method ○ Ethical standards varies from subject to subject ○ Approval and promotion from instructors
Suggestions and strategies	• Validate information with different resources • Schools need tools to detect AI content

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9. Li, Z., Wang, C., & Bonk, C. J. (in press). Exploring ethical AI use in self-directed and formal learning: Learner perspectives through a FATE lens. *AI Enhanced Learning.*

Per Elliot,

"I personally haven't used it for my studies like for papers or anything. My brother is an undergrad in [an institute of technology] and there was a whole case about plagiarism. And all that kind of stuff kind of scared me and him both, that [is why] we don't use any of this. But I've seen people use it and try to say, can you [correct] a few mistakes with this and that, and people do use it. People will keep using it. There's going to be like tools to catch it."

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9. Li, Z., Wang, C., & Bonk, C. J. (in press). Exploring ethical AI use in self-directed and formal learning: Learner perspectives through a FATE lens. *AI Enhanced Learning.*

Per Chandler,

"I think it deteriorates the learning experience to an extent, because it is so easy, and especially for certain subjects, it will basically do the work for you. Like, I find that ChatGPT is particularly adept at math, for instance, and other tasks like that, basically you could feed it [with] any problem that you're likely to have in a test and be able to get a correct answer most of the time. So, if you're doing something like that where the learning process is really involved, and your learning is built on trial and error. I would say, you're shortchanging yourself. And this is an ethical problem."

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9. Li, Z., Wang, C., & Bonk, C. J. (in press). Exploring ethical AI use in self-directed and formal learning: Learner perspectives through a FATE lens. *AI Enhanced Learning.*

Per Elliot,

"I don't like to do things like that, because nobody's forcing me to do a master's. I'm doing it on my own, and if I'm doing it on my own, then I shouldn't be doing shortcuts or things like that. So, I rather not do it then. So that's what I believe in."

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9. Li, Z., Wang, C., & Bonk, C. J. (in press). Exploring ethical AI use in self-directed and formal learning: Learner perspectives through a FATE lens. *AI Enhanced Learning.*

Per Fallon,

"I have one professor who's like, I want you to use it, I want you to use it. And I want you to learn of it but it's a plagiarism problem… but I think that you just testing the field this semester, and maybe he'll change up next. I don't know. He just wanted to see how well we would adapt to it I think…"

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9. **Li, Z., Wang, C., & Bonk, C. J. (in press). Exploring ethical AI use in self-directed and formal learning: Learner perspectives through a FATE lens.** ***AI Enhanced Learning.***

Per Danielle,

Cause I was actually really averse to the idea of ever touching it until my professor had us do it because I'm like, I don't even wanna be accused remotely of using this thing for cheating. I don't want to be anywhere near it. So I was a little bit nervous about it. And I was sort of like, oh, okay, so it's really just "if you don't use it to cheat. It's not cheating," that makes sense. And then, as I was sort of more open-minded to the tool after having to use it like, "okay, I can use this for language learning."

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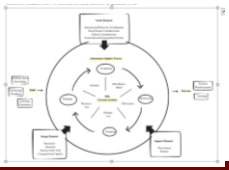
10. Li, B., Zhang, Z., Lowell, V. L., Wang, C. & Bonk, C. J. (in review). Development and validation of the AI-SDL-PA Scale: Measuring personal attributes in AI-integrated self-directed language learning. ***System.*** **A total of 566 global participants were recruited using purposive sampling, targeting individuals who had utilized ChatGPT for language learning through carefully chosen platforms and channels that cater to this group. This study's participants represent a relatively young, predominantly female, and highly educated sample of language learners who had experience using ChatGPT.**



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10. Li, B., Zhang, Z., Lowell, V. L., Wang, C. & Bonk, C. J. (in review). ***System.***

Table 1. Final Version of AI-SDL-PA Survey

	Attitude
	Attitude - Perceived usefulness and positive perspectives towards ChatGPT
A1	Using ChatGPT increases my productivity in learning.
A2	I have a positive attitude towards using ChatGPT as a learning tool.
A3	Using ChatGPT enhances my effectiveness in my learning.
A4	Using ChatGPT improves my learning performance.
A5	My overall perspective towards ChatGPT is positive.
A6	I see it as a valuable addition to my learning toolkit.
A7	My expectations regarding the effectiveness of ChatGPT in supporting my learning are generally met.
A8	ChatGPT has good functionality for my learning purposes.
	Attitude - Perceived ease of use and positive user experience with ChatGPT
A9	Learning how to perform tasks using ChatGPT was easy.
A10	Interacting with ChatGPT does not require a lot of my mental effort.
A11	I find ChatGPT to be easy to use.
A12	My interaction with ChatGPT is clear and understandable.
A13	I find ChatGPT to be flexible to interact with.
A14	I feel it is easy to remember how to perform tasks using ChatGPT.

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10. Li, B., Zhang, Z., Lowell, V. L., Wang, C. & Bonk, C. J. (in review). ***System.***

	Strategy Use - Behavior Strategy
SU31	If I am not satisfied with the answer produced by ChatGPT, I will prompt it for more details.
SU32	If I am not satisfied with the answer produced by ChatGPT, I ask for clarification.
SU33	If I am not satisfied with the answer produced by ChatGPT, I ask follow-up questions.
SU34	I changed the way I ask questions based on ChatGPT's response to help me learn better.
SU35	I give ChatGPT enough background information to help it understand and answer my questions better.
SU36	I break down a complicated task into smaller parts when asking ChatGPT.
SU37	I switch between different ways of asking to get the best results.
SU38	I changed the way I use ChatGPT based on my learning tasks.
	Strategy Use - Cognitive/Meta-Cognitive Strategy
SU39	I check and think about the answers ChatGPT gives me to make sure they are correct and make sense.
SU310	I don't accept all information from ChatGPT as true without thinking it through.
SU311	I compare ChatGPT's responses with other information sources to ensure it is correct.
SU312	I think carefully about the answers ChatGPT gives me.
SU313	I pay attention to how well I'm learning with ChatGPT and change my approach if needed.
	Strategy Use - Overall
SU314	I actively explore and implement diverse strategies to optimize my learning experience with ChatGPT.

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11. Kim, P., Wang, W., & Bonk, C. J. (2025). Generative AI as a coach to help students enhance proficiency in question formulation. ***Journal of Educational Computing Research,*** ***63***(3), 565-586.
https://doi.org/10.1177/07356331251314222

12. Li, Z., Wang, C., & Bonk, C. J. (in review). Generative AI for teachers' self–directed professional development: A mixed-methods study. ***TechTrends.***

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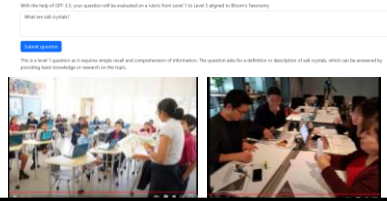
Ask SMILE

Example of asking a Level 1 question (i.e., remembering) and system feedback in the Ask.SMILE system



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11. **Kim, P., Wang, W., & Bonk, C. J. (2025). Generative AI as a coach to help students enhance proficiency in question formulation.** ***Journal of Educational Computing Research, 63*****(3), 565-586.** https://doi.org/10.1177/07356331251314222 **Following the launch of the generative AI Web application, Ask.SMILE, for evaluating the level of questions asked, 2,559 educators generated 25,973 question-feedback sets over a three-month period; an average of over 10 questions generated per participant.**

Figure 1. Example of asking a Level 1 question (i.e., remembering) and system feedback in the Ask.SMILE system

Figure 2. Example of asking a Level 2 question (i.e., understanding) and system feedback in the Ask.SMILE system

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Table 2: Question Level Statistics

	Value	Percent
Number of Observations (N)	25,973	100%
Level 1 Remembering Questions	7,073	27.2%
Level 2 Understanding Questions	4,401	16.9%
Level 3 Applying Questions	2,574	9.9%
Level 4 Analyzing Questions	3,832	14.9%
Level 5 Evaluating/Creating Questions	8,093	31.1%
Mean Level of Questions	3.056	
Standard Deviation (SD)	1.627	

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Table 3: Cross-tabulation of Average Level and First Level of User Questions Generated

	Average Question Level					
First Level	1	2	3	4	5	Total
1	486	208	176	45	0	915
2	13	247	110	78	1	449
3	0	29	152	58	0	239
4	0	23	39	242	14	318
5	0	15	76	117	430	638
Total	499	522	553	540	445	2559

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12. **Li, Z., Wang, C., & Bonk, C. J. (in review). Generative AI for teachers' self–directed professional development: A mixed-methods study.** ***TechTrends.***
Note: We used a mixed-method approach to collect and analyze 298 completed survey responses, five individual semi-structured interviews, and documents (e.g., ChatGPT chat history regarding SDPD usage).

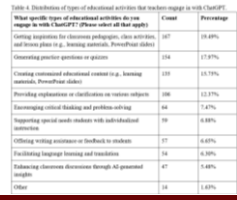

Table 4. Distribution of types of educational activities that teachers engage in with ChatGPT.

What specific types of educational activities do you engage in with ChatGPT? (Please select all that apply)	Count	Percentage
Getting inspiration for classroom pedagogies, class activities, and lesson plans (e.g., learning materials, PowerPoint slides)	167	19.49%
Generating practice questions or quizzes	154	17.97%
Creating customized educational content (e.g., learning materials, PowerPoint slides)	135	15.75%
Providing explanations or clarification on various subjects	106	12.37%
Encouraging critical thinking and problem-solving	64	7.47%
Supporting special needs students with individualized instruction	59	6.88%
Offering writing assistance or feedback to students	57	6.65%
Facilitating language learning and translation	54	6.30%
Enhancing classroom discussions through AI-generated insights	47	5.48%
Other	14	1.63%

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12. **Li, Z., Wang, C., & Bonk, C. J. (in review). Generative AI for teachers' self–directed professional development: A mixed-methods study.** ***TechTrends.***

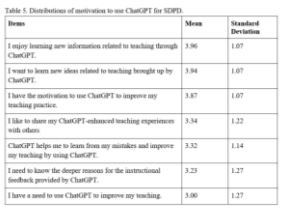

Table 5. Distributions of motivation to use ChatGPT for SDPD.

Items	Mean	Standard Deviation
I enjoy learning new information related to teaching through ChatGPT.	3.96	1.07
I want to learn new ideas related to teaching brought up by ChatGPT.	3.94	1.07
I have the motivation to use ChatGPT to improve my teaching practice.	3.87	1.07
I like to share my ChatGPT-enhanced teaching experiences with others	3.34	1.22
ChatGPT helps me to learn from my mistakes and improve my teaching by using ChatGPT.	3.32	1.14
I need to know the deeper reasons for the instructional feedback provided by ChatGPT.	3.23	1.27
I have a need to use ChatGPT to improve my teaching.	3.00	1.27

Note: Researchers converted the categorical responses into numeric levels. ("Not at all" = 1, "A little" = 2, "Some" = 3, "Quite a bit" = 4, "Very much"=5).

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12. **Li, Z., Wang, C., & Bonk, C. J. (in review). Generative AI for teachers' self–directed professional development: A mixed-methods study.** ***TechTrends.***

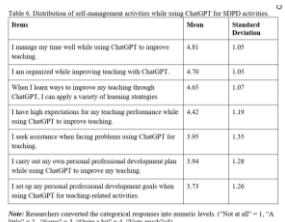

Table 6. Distribution of self-management activities while using ChatGPT for SDPD activities.

Items	Mean	Standard Deviation
I manage my time well while using ChatGPT to improve teaching.	4.81	1.05
I am organized while improving teaching with ChatGPT.	4.70	1.05
When I learn ways to improve my teaching through ChatGPT, I can apply a variety of learning strategies	4.65	1.07
I have high expectations for my teaching performance while using ChatGPT to improve teaching.	4.42	1.19
I seek assistance when facing problems using ChatGPT for teaching.	3.95	1.35
I carry out my own personal professional development plan while using ChatGPT to improve my teaching.	3.94	1.28
I set up my personal professional development goals when using ChatGPT for teaching-related activities.	3.73	1.26

Note: Researchers converted the categorical responses into numeric levels. ("Not at all" = 1, "A little" = 2, "Some" = 3, "Quite a bit" = 4, "Very much"=5).

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12. Li, Z., Wang, C., & Bonk, C. J. (in review). Generative AI for teachers' self–directed professional development: A mixed-methods study. *TechTrends.*

Table 7. Distribution of self-monitoring while using ChatGPT for SDPD activities.

Items	Mean	Standard Deviation
I am responsible for my learning with ChatGPT for improving teaching.	4.19	0.89
I have high learning standards when I use ChatGPT to improve teaching.	4.04	1.04
I can direct my own learning progress while using ChatGPT to improve teaching.	3.83	0.96
I review the online teaching materials provided by ChatGPT based on my needs.	3.82	1.18
I am not distracted by other online tools and activities (e.g., WhatsApp, Instagram, Facebook, etc.) while using ChatGPT for teaching-related activities.	3.52	1.38

Note: Researchers converted the categorical responses into numeric levels. ("Not at all" = 1, "A little" = 2, "Some" = 3, "Quite a bit" = 4, "Very much"=5).

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Remember…

"I cannot do this alone."

"I cannot do this alone."
"I cannot do this alone."
"I cannot do this alone."

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Activity #9 (Personal or Paired): Anyone want to show anything? Any wow tools or resources to foster SDL?

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Thank You! Q&A

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(With help from Dr. Meina Zhu, Wayne State University, meinazhuiu@gmail.com **and Zixi Li, Doctoral Student, IU,** lizixi@iu.edu**)**

Bonk, C. J., & Zhu, M. (2023, online first). On the trail of self-directed online learners. ***ECNU Review of Education.***
https://doi.org/10.1177/20965311231169795

Zhu, M., & Bonk, C. J. (2022, online first). Guidelines and strategies for fostering and enhancing self-directed online learning. ***Open Learning: The Journal of Open, Distance and e-Learning.*** **DOI:**
https://doi.org/10.1080/02680513.2022.2141105

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Activity #10 (Personal or Paired): Anyone have a comment or a question?

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Any Questions or Comments?

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