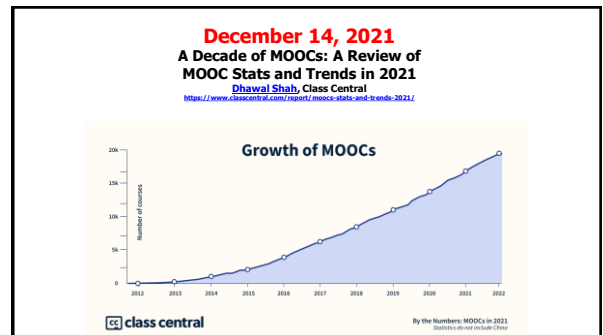


**Self-Direct to Learn, Self-Direct to Live: Exploring Learner Choices, Experiences, and Possibilities in a Self-Directed Learning World**

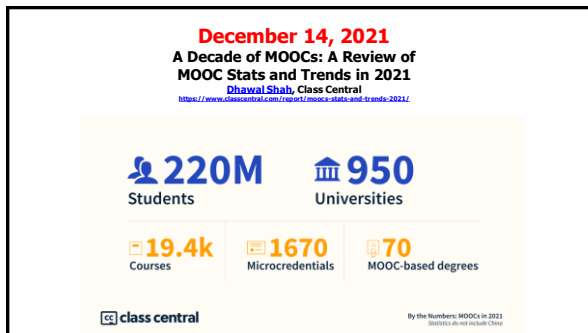
**Curtis J. Bonk and Zixi Li**  
**Indiana University**  
[cjbonk@indiana.edu](mailto:cjbonk@indiana.edu)  
<http://curtbonk.com/>



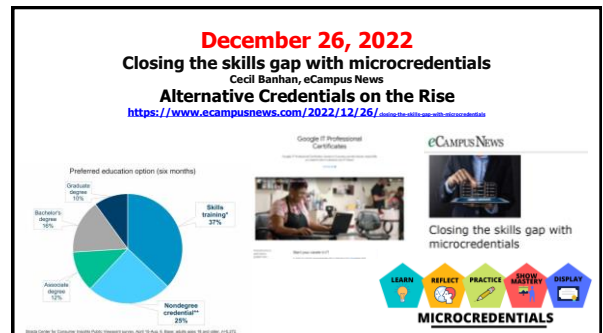
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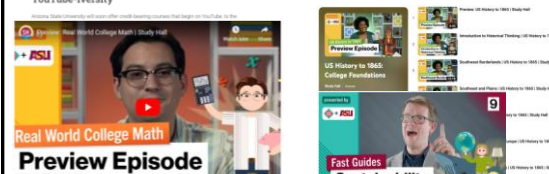
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**January 25, 2023**  
**YouTube-iversity, ASU**  
**Susan D'Agostino, Inside Higher Ed**  
<https://www.insidehighered.com/news/2023/01/25/asu-youtube-iversity-asu-youtube-university-learning-margins>

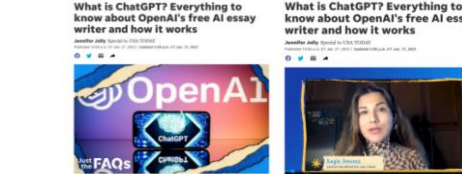
**YouTube-iversity**



5

**January 31, 2023**  
**What is ChatGPT? Everything to know about OpenAI's free AI essay writer and how it works**  
**Jennifer Jolly, USA Today**  
<https://www.usatoday.com/story/tech/2023/01/31/22/chatgpt-essay-writer/11122947902/>

**What is ChatGPT? Everything to know about OpenAI's free AI essay writer and how it works**



6

**October 22, 2021**  
**Wanted:**  
**Billions of Self-Directed Learners**



7

**Benefits of Self-Directed Learners**  
<https://discoverpraxis.com/reasons-not-to-go-to-college/>

**THE BENEFITS OF SELF-DIRECTED LEARNING**

- ✓ Teaches you to take initiative and create value
- ✓ Builds self-confidence
- ✓ Teaches perseverance and flexibility
- ✓ Kindles intrinsic motivation
- ✓ Promotes self-awareness
- ✓ Helps you find a career you find personally fulfilling
- ✓ Allows you to learn skills more holistically
- ✓ Teaches social skills
- ✓ Lets you explore a wider range of interests
- ✓ Gives you the practical experience to execute what you've learned

PRAXIS

8

**Ψ**




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

Li, Z., Zhu, M., & Bonk, C. J. (in review). Nepali adolescents exploring MOOCs: Scalable results leading to an optimistic future. *Distance Education*.


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The name of the Himalayan peak is Mt. Nilgiri with 7081 Meters height.



Bishwa Raj Gautam, Program Specialist, Regional English Language Office (RELO), U.S. Embassy, Nepal.



With Baman Kumar Ghimire, Motherland Secondary School, Pokhara, Nepal.



10

**November 9, 2019**  
**Greetings from Nepal**



AECT 21

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**November 9, 2019 Chapter 9. Nepali High School Students in Massive Open Online Courses (MOOCs): Impressive Results and a Promising Future**  
**Baman Kumar Ghimire and Bishwa Raj Gautam**

Greetings from Nepal, Baman Kumar Ghimire  
 Teacher, Motherland Secondary School, Pokhara



AECT 21

12

## Participant #1 (boy, grade 10)

(22 courses so far, mostly from Coursera). A Grade 10 student from a public school where English is taught only for about 3 hours a week, he initially joins into any course he finds suitable probably for learning English.

## From Coursera.org

1. English For Science, Technology, Engineering and Mathematics
2. Understanding Research Methods
3. What Future For Education?
4. Social Norms, Social Change I
5. Stanford Introduction to Food and Health
6. Luther and the West
7. Power Collaborating
8. eHealth: More than just an electronic record
9. Improving your statistical relevance
10. Global Health Policy
11. English for Health Science
12. Code Yourself An Introduction to Programming
13. Behavioral Finance
14. English For Journalism
15. Teach English Now! Teaching Language Online
16. Creative Thinking: Techniques and Tools For Success
17. Economic Growth and Distribution Justice Part I: The Role of the state
18. Transmedia Storytelling: Narrative Worlds, emerging technologies, and global audiences
19. Introduction to Cloud Security
20. Introduction to Psychology
21. Neuroscience and Epistemology, Part I
22. Assessment For Learning
23. Big History: Connecting Knowledge
24. The Science of Stem Cells



AECT 21

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## Participant #2 (girl, first MOOC age 10)

(Started MOOCing at the age of 10. The list includes only those courses she completed during the pandemic. She has been taking 4 hours classes from school every day for the last 5 months)

1. Ideas for better world: leading change through policy making
2. Introduction to psychology: biological
3. Introduction to psychology: Learning
4. What is Neuroscience?
5. Statistical Genetics
6. Social English 1: Elementary
7. Social Change How can marketing help?
8. Program preference and pandemics: Are you ready?
9. Digital Skills: Social Media
10. Introduction to Conversational interfaces
11. Introduction to Creative AI
12. COVID-19: Effective learning in times of crisis
13. Three in trying times: teach out
14. Managing mental health and stress
15. AI and marketing: the health and wellness
16. COVID-19: Helping young people
17. Planning your work week: health
18. Collaborative Working in Remote Teams
19. Essential skills for career development
20. Creating a Social Media Marketing Campaign
21. How to make great online content?
22. Learn to Code for Web
23. Get creative with process
24. Computer programming with awareness
25. COVID-19: Tackling the novel coronavirus
26. Inclusive education: essential knowledge for tomorrow



AECT 21

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## Participant #3 (teenage girl)

(This is the girl who is seen in my promo page. She comes from the area that experiences very low internet connectivity.)

1. Plagues, witches, and war: The worlds of historical fiction.
2. English for stem
3. Wonders of ancient Egypt.
4. Introduction to programming and animation with Alice
5. Tricky English Grammar
6. Creative writing: The craft of plot
7. Greek and Roman mythology
8. English for career development
9. The science of well being



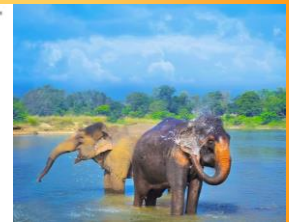
AECT 21

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## Participant #4 (13 year old girl; first MOOC at age 9)

(20 courses from Coursera and about 20 from other platforms. She started MOOCing when she was 9 years old)

1. Social Psychology
2. A Life of Progress and Fulfillment
3. Advancing: Exploring Time and Space
4. Learning: Neuroscience
5. Learning with the Arts
6. Dog Cognition and Cognition
7. Introduction to Calculus
8. The Science of Success: What Researchers Know that You Should Know
9. Patterns in Design
10. New Models of Business in Society
11. Learning to be a leader in Asia
12. Introduction to Philosophy
13. Introduction to Marketing
14. Language Instructional Technology Global Pedagogical Locales
15. The Strategy of Content Marketing
16. Introduction to Marketing
17. Enterprise in entrepreneurship
18. Small Computing Basics (Class 10)
19. Exchange: Economics Dynamics and Conservation
20. AI and Ethics
21. Communicating During Global Emergencies
22. Introduction to Financial Modeling
23. New Things With AI: Robotics and Physics
24. New Models of Business in Society
25. Microsoft: Break Through Obstacles to Learning and Discover Your Hidden Potential
26. Psychological First Aid
27. Communication Strategies for a Virtual Age
28. Introduction: Healthcare and Collaborative
29. Microsoft: 101



AECT 21

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December 20, 2022

Baman Ghimire

<https://www.facebook.com/baman.ghimire.3>


17

October 31, 2020  
Silver Lining for Learning Episode #33: Nepal

18

## 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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## Motivation

Belanger and Thornton’s (2013) four motivations for taking MOOCs:

- Increasing knowledge in a subject matter without expectations of achievement.
- Interacting with other learners and instructors on a global scale.
- Breaking accessibility barriers of traditional education.
- Exploring and experiencing online education.



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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)



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## Research Questions

Methods: Teacher’s Perspective

1. What scaffoldings and environmental cues were provided by teachers to support Nepali adolescent in enrolling and succeeding in MOOCs?
2. What are Nepali teachers’ perspectives on using MOOCs as supplementary resources?



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## 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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## Data Collection Background

### Student Interviews

- ✓ Total #13
- ✓ Semi-structured
- ✓ 7 female
- ✓ 6 male

### Teacher Interviews

- ✓ Total #7
- ✓ Semi-structured
- ✓ 4 female
- ✓ 3 female

### Student Focus Groups

- ✓ Total #2
- ✓ Semi-structured
- ✓ total 8 students



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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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## Identified Themes

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

Teacher roles | facilitators, guides, cheerleaders

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

Strategies & student initiatives | student mentors, intrinsic sources, incentives

Challenges & suggestions | engaging with courses, resources, design



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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."*



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## 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..."*



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## 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."



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## RQ 1

Teacher roles | facilitators, guides, cheerleaders

"I'd call them to the front. And I would say I would like to congratulate the people who have been doing this, like various courses staying in Nepal..." (T#3, line 162-164)

"...so, we just asked them, **What was the course about what did you learn? Did it really benefit you? Did it you know, help you in the coursework? These questions, help them to kind of you know, reflect on...**" (T#4, line 475-478)



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## RQ 1

Strategies &amp; student initiatives | student mentors, intrinsic sources, incentives

"Those students who just completed MOOC, **they are really happy got excited here** they are **leading the group** and they are sharing their experience." (T#4, line 588-591)

"**They have shown interest in coding**, and they have started now they're running coding Club in school. And they mentor the junior those who did coding courses and now mentoring the juniors they're supporting the juniors." (T#1, line 259-263)

"...they were quite interested, they showed their **motivation in doing the courses**, so we didn't have to push them. You know, they were like motivated internally..." (T#4, line 283-286)



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## 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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## RQ 2

Challenges &amp; suggestions | engaging with courses, resources, design

"In some of the courses no the font size is too small. Font size is very small, and many students try to when they try to do the courses, they cannot see that clearly." (T#2, line 620-622)

"So, **the courses are designed for the students**, school level students, it **would be better**." (T#1, line 711-713)

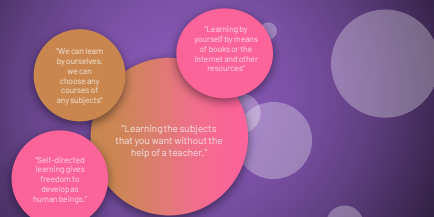
"Short video. **Follow up questions**, 3-4 questions, the next video, 3-4 questions." (T#2, line 643-645)



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## SDL Definition From Students' Point of View



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*"My life changed....(MOOCs) opened my eyes for a whole new field of learning."*

*"I'm learning something not included in the regular (school)."*

*"Learning can never be stopped."*



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*"I expanded my friends. We are exchanging cultures."*

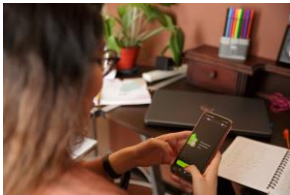
*"We have the freedom to learn ourselves."*

*"My personal formula (to success online): ACET: Active Learning, Collaboration, Engagement, and Time Management."*



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## Study #2: Li & Bonk (in press CALL) Self-directed language learning in Duolingo



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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
128	31	24	7	5
ITALIAN	KOREAN	IRISH	SWAHILI	SWEDISH
2	2	1	1	1

40

Most popular language studied on  
Duolingo in each country in 2021



(Blanco, 2021)

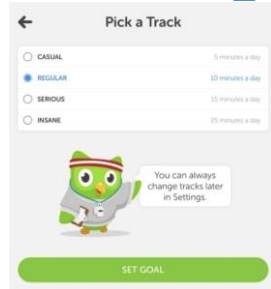
41

## Platform Overview

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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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## Gamification

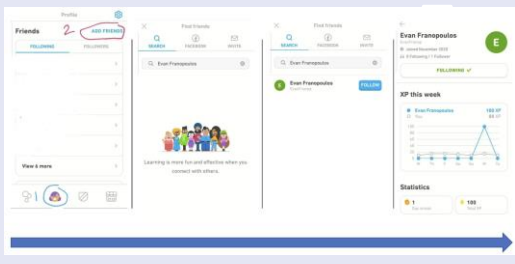
Duolingo applies **gameful learning** to keep the learner motivated and consistently engaged in a positive and casual learning environment.

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	Cross-Risk	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



Interviewee #2

"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."

"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

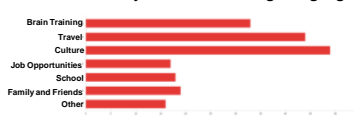


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## Finding: Motivation

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

- Böhne et al. (2002) indicated that **students struggled in a Web-based learning environment due to a lack of ways to obtain help** when needed.
- **Tutor support is crucial in SDL** because a tutor can facilitate planning the learning process, clarify content, and even provide technical support (Böhne et al., 2002).
- The **lack of research on resource management strategies** might be due to the fact that most prior research either took place in **formal learning settings** where teachers are present and can provide both human and material resources or investigated what resources learners use towards a target language (e.g., English).

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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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IST CONFERENCE, 2023

## 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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## MOOCs & SDL

LITERATURE REVIEW

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-Mencia et al., 2020).



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## Research Gaps

LITERATURE REVIEW

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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## Research Questions

LITERATURE REVIEW

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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## Overview

METHOD

- A **qualitative** method was used to fill in the research gap.
- **Convenient sampling** was applied.
- **Individual interviews** were conducted with 11 MOOCs instructors.
- **Thematic analysis** was used to analyze the data.
- The data analysis process is **still ongoing**.



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## Participants Recruitment

METHOD

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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## Participants Demographics

METHOD

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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## Instrument

METHOD

1. The interview instrument was adapted from the Zhu et al. (2019, 2020) study, which investigated MOOC instructors' practices to facilitate student SDL, which was based on Garrison's (1997) conceptual framework.
2. The semi-structured interview protocol included:
  - The consent information
  - Interviewees' **demographic** questions
  - Questions about instructors' **perception** of SDL and open education
  - Questions about **specific perspectives** of SDL based on Garrison (1997)
  - Questions about instructors' **professional development** needs



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## Interview Protocol Sample

METHOD

<b>Question 2</b>	What types of <b>support</b> do you receive from your home institutions? Is there a team facilitating your MOOCs design?
<b>Question 4</b>	What do you think of the <b>responsibility</b> of instructors to facilitate students' SDL skills in MOOCs?
<b>Question 5</b>	How do you think the design and delivery of your MOOC can help develop students' <b>self-management skills</b> such as time, resources, and support? Could you please give me a specific example in designing or developing your MOOC that might have had a direct or indirect impact on these skills?



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## Data Analysis

METHOD

1. All interviews were conducted and video **recorded** through Zoom.
2. **Thematic analysis** (Braun & Clarke, 2006) are used for data analysis.
3. After the researchers reviewed the transcriptions to improve the accuracy, **member check** is applied to further increase the accuracy.
4. Data are coded through **NVivo 12**.
5. Data analysis is still **ongoing** at this moment.



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SECTION 4

## Tentative Findings

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## 1. Self-Management

TENTATIVE FINDINGS

### 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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## Self-Management

TENTATIVE FINDINGS

**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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## Self-Monitoring

TENTATIVE FINDINGS

**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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## Motivation

TENTATIVE FINDINGS

**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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## Professional Development

TENTATIVE FINDINGS

**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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## Interesting Perspectives

TENTATIVE FINDINGS

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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## Practical Findings

SIGNIFICANCE

The findings should impact on the design and delivery of courses that **affect millions of students in practice**. A critical impact of this study is to provide institution leaders with the insights of carrying out MOOCs projects, especially focusing on providing professional development support for MOOCs instructors.



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## SDPD

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

Zixi Li

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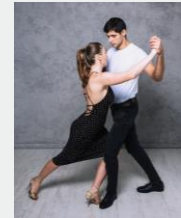
### Self-directed professional development (SDPD)

- 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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## LITERATURE REVIEW

### 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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## Self-directed professional development (SDPD)

- SDPD, instead of focusing on if the forms of PD are formal or informal, highlights the teachers' own interest and initiative to learn and grow the profession (Fraser-Seeto et al., 2015; Mushayikwa & Lubben, 2009).
- For example, Fraser-Seeto et al. (2015) explored SDPD as a PD package that was initiated by the Australian government which provided elective materials and a self-paced learning environment. 96 completed survey data was collected from primary school in-service teachers. The findings of this study suggested effective support systems and awareness of existing resources are important to SDPD.

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## Motivation

- Many other studies have been conducted on the teaching motivations of teachers in **formal educational systems**, such as Watt and Richardson (2007), Hildebrandt and Eom (2011), and Mansfield and Beltman (2014); however, research on teaching motivation outside of formal schooling remains scarce.
- Thomson and Turner's (2013) study suggested that the four key motivation factors of continuing teaching for 151 public teachers are **intrinsic reasons** (e.g., the joy of teaching), **extrinsic reasons** (e.g., new qualification, bonus, etc.), **job perception** (e.g. considering teaching as a noble occupation with high social status), and **extended reasons** (e.g., the potential to connect to other occupations, the opportunity to travel teaching). Intrinsic or altruistic motivators are much more dominant motivators.

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## Self-management

- Research indicated that having sufficient teacher resources related to their job responsibilities is a positive influence on teacher motivation and well-being in formal schooling (Bermejo-Toro et al., 2016; Skaalvik & Skaalvik, 2018).
- Some research on teacher resources has been highly centered on:
  - Subject-based resources and content knowledge (Adler, 2000; Ferlazzo & Sypniewski, 2022; Gnawali, 2016; Gueudet et al., 2012).
  - Tool-based resources (Bissessar, 2014; Edwards & Cooper, 2010)
  - Pedagogy-based resources (Maksymchuk et al., 2020)
  - Community-based resources that focus on collaborations with other teachers (Horn et al., 2020; Mak & Pun, 2015; Van Lankveld et al., 2016)
  - Institution-based resources (Miles & Darling-Hammond, 1998; Peng, 2019)

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## Self-monitoring

- Self-monitoring is the cognitive and metacognitive process of constructing meaning through critical reflection (Garrison, 1997).
- Self-reflection in teaching can increase effectiveness and help teachers to recognize knowledge gaps and their specific need for professional development (Gardner, 2014; Lubbe & Botha, 2020).
- Kirpalani (2017) suggested that teachers' self-reflection should be based on the teaching content, teaching process, and teaching premise. Such self-reflection may be a useful addition to existing evaluative quantitative measures, such as student evaluations (Grech, 2021; Kirpalani, 2017).

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## Research Question

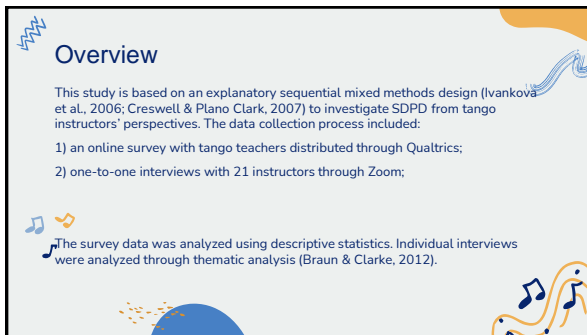
- How do tango instructors **self-manage** their goals, time, and resources toward self-directed professional development?
- What **self-monitoring** strategies are employed by tango instructors to overcome challenges and frustrations related to their professional development?
- What **motivating factors**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

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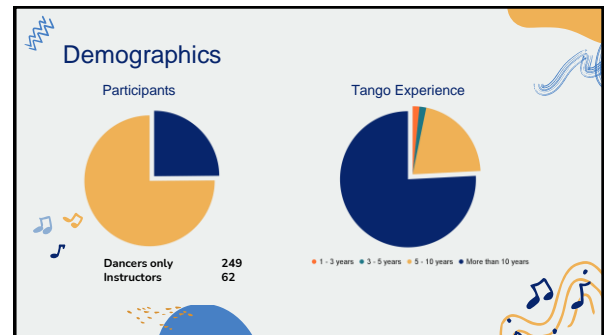
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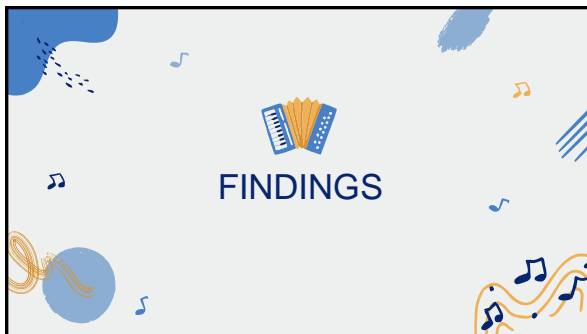




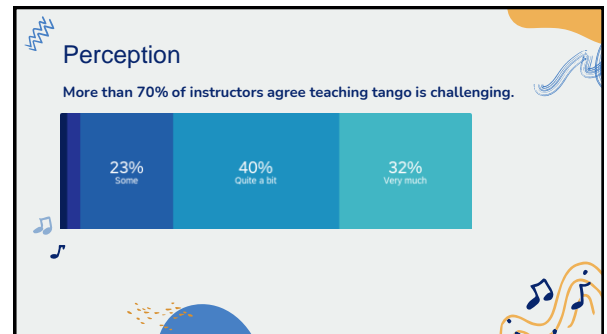
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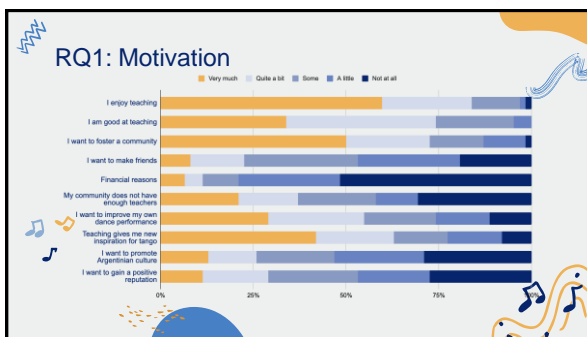
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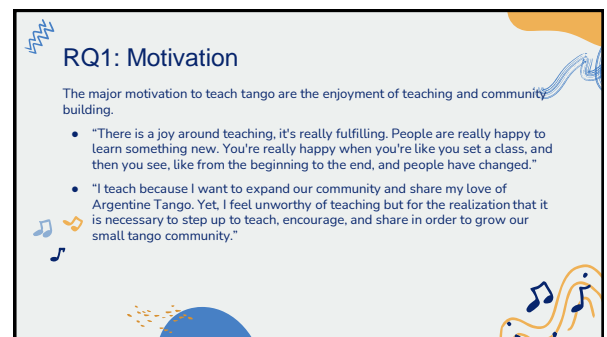
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### RQ1: Motivation

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

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."

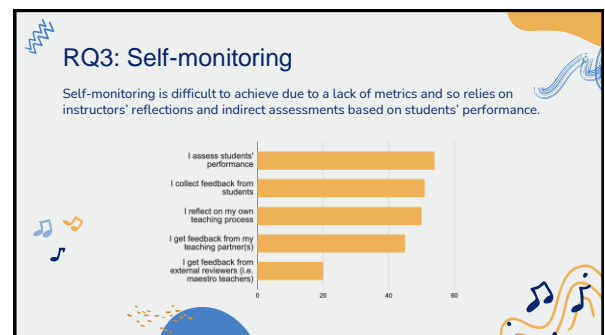
100

### 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.

"If 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

- 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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### Discussion

- It might suggest that regardless of the educational context, intrinsic motivation, such as enjoying teaching and fostering a community, plays a significant role in instructors' teaching career paths and professional growth.
- Importantly, both the survey and interview data suggested that human resources, such as a community of teachers and their own life experiences, are crucial resources to support their SDPD. It may suggest that collaborations with others play an important role in SDPD as indicated by various studies on using community-based resources in developing teachers' PD, such as in Horn et al. (2020), Mak & Pun (2015), and Van Lankveld et al. (2016).

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### Discussion

- Interviewee data strongly indicated tango instructors' prior teaching experience in other fields are significant resources that are transferable to tango teaching. Thus, there are aspects of teacher knowledge that are shared by all teachers or large groups of teachers, despite the fact that teacher knowledge is heavily tied to individual experiences and contexts (Verloop et al., 2001).
- In regard to self-monitoring, both survey and interview data confirmed that critical self-reflection and assessing students' performance were two vital ways for instructors to judge whether their teaching is improved. Self-reflection has been recognized as a significant component of PD programs (Gardner, 2014; Lubbe & Botha, 2020). Future research may explore specifically what types of self-reflection is valuable based on Kirpalani's (2017) classification.

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### Significant Research

- Minimal research was done in SDPD in the field of **outside formal education** context.
- However, teachers outside formal educational settings often face more **PD barriers** of resources, location, and time; therefore, they are more likely to use SDPD (Mushayikwa & Lubben, 2009).
- It will address the research gap that the majority of studies in dance education focus on developing dance expertise rather than **teaching competence**.

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## Limitation

- We need to also point out that the findings might be biased due to the fact that the study participants likely were interested in or dedicated to education.
- Our findings were based on self-report data; we did not directly observe their process in SDPD, teaching practice, or student performances. Therefore, it is a possibility that responses may be inflated, information may not be true to reality due to privacy considerations, or have social desirability bias.
- The tango instructor participants came from varied sources like Facebook pages and in-person dance events, which are not from a centralized database.

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## Thank you!

Have more questions?

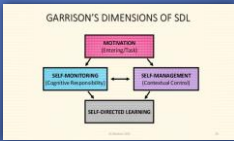
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## Study #5

### MOOCs Instructional Design to Facilitate Participants' Self-Directed Learning




The diagram illustrates Garrison's Dimensions of Self-Directed Learning (SDL). It shows a central box labeled 'SELF-DIRECTED LEARNING' at the bottom. Above it are two boxes: 'SELF-MONITORING (Cognitive Responsiveness)' on the left and 'SELF-MANAGEMENT (Personal Control)' on the right, connected by a double-headed arrow. Above these two boxes is a box labeled 'MOTIVATION (Intrinsic/Extrinsic)'. Arrows point from the motivation box down to the self-monitoring and self-management boxes, and from these two boxes down to the self-directed learning box.

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## Key Terms

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

- (1) self-management
- (2) self-monitoring
- (3) motivation




The diagram illustrates Garrison's Dimensions of Self-Directed Learning (SDL). It shows a central box labeled 'SELF-DIRECTED LEARNING' at the bottom. Above it are two boxes: 'SELF-MONITORING (Cognitive Responsiveness)' on the left and 'SELF-MANAGEMENT (Personal Control)' on the right, connected by a double-headed arrow. Above these two boxes is a box labeled 'MOTIVATION (Intrinsic/Extrinsic)'. Arrows point from the motivation box down to the self-monitoring and self-management boxes, and from these two boxes down to the self-directed learning box.

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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.



The image shows a collage of various MOOC (Massive Open Online Course) logos and branding, including 'MOOC on MOOC' and 'MOOCs'.

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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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Pseudonym	Country	Subject area	Platform	Gender	No. of OIB	No. of M	Mode of the M
Lucas	US	Social science	edX	M	0	1	I without T
Brandon	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	FuturLearn	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	FuturLearn	M	0	3	I with T
Emily	UK	Medicine and health	FuturLearn	F	2	2	I with T
Aiden	UK	Social science	FuturLearn	M	0	1	Self-paced
Harry	UK	Social science	FuturLearn	M	0	1	Self-paced
Joseph	UK	Medicine and health	FuturLearn	M	1	1	Self-paced
Joshua	UK	Literacy and language	FuturLearn	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	Netherlands	Science	Coursera	M	0	1	I with T
Dylan	Ireland	Science	Coursera	M	6 or more	3	I without T

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## 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.

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## Study #6

### 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 #4

### 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

Pseudonym	Gender	Country	Occupation
Abdullrahman	M	Turkey	Teacher
Ali	M	Yemen	Student
Altun	F	The US	Student
Betty	F	Albania	Engineer
Cheng	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
Melina	F	Germany	Student
Moustapha	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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## 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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### 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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## 15 Guidelines and Strategies for Fostering and Enhancing Self-Directed Online Learning

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, and
- (15) using gamification to support SDL.

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## #1. Helping students set their own learning goals

### Set a weekly goal

Learners who set a goal are 75% more likely to complete the course. You can always change it.

☒ Learn 3 days a week Recommended  
☐ Learn 2 days a week  
☐ Learn 5 days a week

Your goal will be tracked Monday - Sunday

[Set goal](#) [Get help](#)



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## #2. Encouraging learners to make plans

Set your schedule

✓ Your goal is set!

You're more likely to reach your goal if you dedicate some time in your schedule for learning. Choose the days that work for you:

Mo ☒ We ☒ Th ☐ Fr ☐ Sa ☐ Su

Start time: 9:30 AM End time: 9:00 AM

[Add to Google Calendar](#) [Other calendar](#)

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## #3. Offering flexible timelines

You've already completed 71% of your course! [Reset my deadlines](#) as you can finish the rest!

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## #4. Highlighting estimated time frames

WEEK 1

Pick up where you left off!

Don't let the good things you learned fade away! Reset your deadlines and complete your assignments every week.

[Reset my deadlines](#)

WEEK 1 Estimated Time: 1h 7m

The Spring of the Penitents: A Brief Look at ESL History

Videos: 7 min left Quizzes: 20 min left Readings: 20 min left Practice Exercises: 20 min left

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

Putting yourself on the map (External resource)

World101: A new run for World101 to begin today! Expand your knowledge before World101!

Discussion Forum: A new run for World101 to begin today! Expand your knowledge before World101!

Video Player: A new run for World101 to begin today! Expand your knowledge before World101!

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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

Try again once you are ready. Required to pass: 80% or higher. You can retake this as many times as you'd like.

1. Why was the grammar translation approach taught? Check all that apply.

- ☐ To teach culture and morals.
- ☐ To teach grammar and language rules.
- ☐ To teach correct grammar and language rules.
- ☐ To teach correct grammar and language rules.

2. Who was the typical student in the Grammar Translation approach?

Correct: Yes, this is correct.

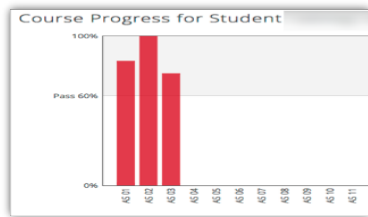
- ☒ Wealthy young men
- ☐ Middle class men and women
- ☐ Poor young men

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## #8. Crafting visuals showing work progress and tasks completed



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## #9. Providing reflection questions



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## #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 10min
- Reading: ADVANCED: A Blanket Around the Earth 10min

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

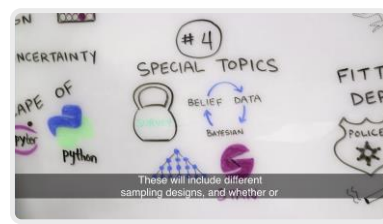
WEEK 1 - OVERVIEW & CONSIDERATIONS FOR STATISTICAL MODELING

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

The chapter objectives in reading in 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 code to answer them.

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

```
[1]: import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
import random as rd

url = "https://bit.ly/35Lz0m7"
df = pd.read_csv(url)

# Drop unused columns, drop rows with any missing values
cols = ["country", "continent", "population", "gdp", "life expectancy", "income"]
df = df.drop(columns=cols)
df = df.dropna()

df["year"] = df["year"].astype(int)
df["gdp"] = df["gdp"].astype(float)
df["life expectancy"] = df["life expectancy"].astype(float)
df["income"] = df["income"].astype(float)
```

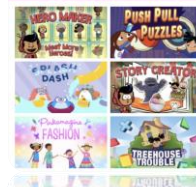
Question 1: What is the average GDP? (You'll answer this question within the quiz that follows this notebook)

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## #15. Using gamification to support SDL

### Popular Games



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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). 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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## Thank You! Q&A

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