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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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Sequential mixed methods design (Creswell & Clark, 2017
Data Collection:
Survey     Interview

Method

Course review

#### **Participants:**

• 143 survey participants (10% response rate)

12 interviewees

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No. Cou			
	Intries	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	g Kong (China)	Math	Coursera
8. Main	land China	Math	Coursera
9. Cana	da	Psychology	Coursera
10. Aust	ralia	Medicine and Health	Open2Study
11. Swee	len	Computer Science	edX
11. Sweet 12. India	len I	Computer Science Management	edX edX

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	Data An	alysis
RQs	Data Sources	Data analysis
	Survey-multiple-choice questions	Descriptive statistics
<b>DO1</b>	Survey-open-ended questions	Content analysis (Elo & Kyngäs, 2008)
KQI	Interview	Content analysis
	MOOC review	Content analysis
	Survey-multiple-choice questions	Descriptive statistics
RQ2	Survey-open-ended questions	Content analysis
	Interview	Content analysis
002	Survey-multiple-choice questions	Descriptive statistics
ĸųs	Interview	Content analysis

































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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)

**Motivations for taking MOOCs** 

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.





- 2. What self-monitoring strategies are employed by Nepali adolescent youth to evaluate their learning process and overcome challenges and frustrations related to MOOCs?
- 3. What self-management approaches do Nepali adolescent use to manage their goals, time, and resources when learning through MOOCs?



Student Participants
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Interviewees	Gender	Age	Location	School	English level	Age started taking MOOCs	# of MOOCs completed
Aange	М	18	Gulmi	Resunga Secondary School	B2	13	More than 50
Binsa	F	16	Pokhara	Motherland Secondary School	C1	14	23
Chaha	F	17	Pokhara	Motherland Secondary School	CI	13	Around 50
Daxa	F	13	Kirtipur	Creative Academy	B2	11	12
Ehani	F	14	Kirtipur	Creative Academy	B2	11	15
Faneel	М	17	Syangja	Ranbir Janahit Secondary School	B1	13	120
Geetu	F	16	Pokhara	Motherland Secondary School	C1	13	More than 40
Hartaj	M	14	Kirtipur	Creative Academy	B2	13	21
Imay	М	17	Syangja	Ranbir Janahit Secondary School	B1	13	Around 50
Juddha	M	15	Kirtipur	Creative Academy	B2	12	9
Nugah	M	14	Kirtipur	Creative Academy	B2	12	21
Saudis	М	17	Nawalpa rasi	Janata Secondary School	B1	14	Around 90
Palisha	F	16	Kailali	Gumbal Academy	CL	11	75

Ide	entified Themes
Motivation	Extrinsie     Intrinsie
Self-monitoring	<ul> <li>Evaluate learning</li> <li>Monitor learning pace</li> <li>Strategies</li> </ul>
Self-management	Manage goals towards self-growth     Manage time     Manage resource
Outcome & Impact	Improve independence and time-management skills     Life-long impact or practical meanings     MOOCs relate to school or complement school learning     Support career selection
Struggles and Challenges	Access to technology     Base-language of the courses is difficult     Course design     Need guidance     Ummatched levels

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#### **RQ1 Findings: Motivation**

Inspiration from others, including verbal encouragement from others, friendly competition among peers, and recognition from others were are critical external motivational factors mentioned by 11 interviewees.

"[That] is the first course I took, and I showed it to my mom and dad, and they were quite happy with that, and I continued with [sic] doing other [sic] courses slowly and gradually and I do wish to [take] 50 to 60 [courses]." (Ehani)

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#### **RQ1 Findings: Motivation**

Among the internal motivation factors, 12 of the 13 interviewees indicated that they were driven by natural curiosity toward learning.

"when I see that there is anything that I haven't studied before and that is all new, and I am eager, and <u>I am excited to know more and more.</u>" (Faneel)

"Basically, in schools, there are eight or nine courses that are compulsory, <u>but in MOOCs we can go beyond those [sic] courses</u> as well, and we can explore ourselves so that we can find our goal in our life with its help." (Nugah)

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#### **RQ2 Findings: Self-monitoring**

Self-monitoring is especially demonstrated through how learners analyze and align their learning capabilities with the levels of MOOCs in order to determine which courses to take. In fact, four of the interviewees indicated that unmatched levels between their ability to complete a MOOC and the targeted level of a course were the biggest challenge in their learning.

"So talking about difficulties, I remember one of our friends was [sic] enrolled in a course that was not meant for us either, so it was a course that was for the level of bachelor's. And so those courses resist skipping past [sic] the course, because we are not able to understand it, and it does not allow everyone to understand it either." (Juddha)



Six interviewees in this study indicated that they manage their learning goals; however, their goals are not specific short-term goals but rather long-term goals of self-growth.

"I first was attracted by the fluency of how English was spoken [by MOOCs instructors], like few NG [bloopers], and the way they pronounced, everything was so clear, and everything was so good, like, <u>L also want to be a public speaker</u>, <u>L also want to be</u> <u>like them." (Ehani)</u>

#### Study #3 Self-directed language learning in Duolingo

Li, Z., & Bonk, C. J. (2023). Selfdirected language learning with Duolingo in an out-of-class context. *Computer Assisted Language Learning.* https://doi.org/10.1080/09588221.20 23.2206874





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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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**Research Questions** 

Research questions are based on Garrison's (1997) SDL model.

2. What self-monitoring strategies are employed by Duolingo

learners to overcome challenges and frustrations related to

3. What motivating factors underpin the decisions of learners to

1. How do Duolingo learners self-manage their learning?

learning foreign languages with Duolingo?

learn a foreign language with Duolingo?

Research questions are as follows:

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 Learning with technology (e.g., Duolingo) in an out-of-classroom context is often challenged by the absence of instructors and lack of guidance.

Context

- 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.







#### **Research Questions**

Research questions are based on **Garrison's (1997) SDL model**. Research questions are as follows:

- 1. How do Duolingo learners self-manage their learning?
- What self-monitoring strategies are employed by Duolingo learners to overcome challenges and frustrations related to learning foreign languages with Duolingo?
- 3. What motivating factors underpin the decisions of learners to learn a foreign language with Duolingo?

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#### **Finding 1: Self-management** 2. 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 due to the area marind in schedus L really have no time. The just

during the exam period in schools, I really have no time. I'm just busy completing my markings" (P10)



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 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.

> "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." (P2)

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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. "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." (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)



# 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.,

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2020).

#### MOOCs & SDL

- MOOC learning significantly differs from traditional classroom learning regarding the roles and duties of both instructors and learners (Zhu et al., 2020).
- Successful MOOCs learning requires self-directed learning (SDL) skills (Kim et al., 2021; Zhu et al., 2020).
- 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 Questions**

- 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-monitoring 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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#### **Participants Recruitment**

- 366 MOOCs instructors from institutions in South America were identified from major MOOCs websites (i.e., Coursera, EdX, FutureLearn)
- 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.

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	Malo	Colombia	2
Hernán	Male	Brazil	4
Ignacio	Male	Colombia	1
Jorge	Male	Chile	3
Keiman	Male	Chile	1

### **Study Design: Instrument**

- 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 specific perspectives of SDL based on Garrison (19)
     Questions about instructors' professional development needs

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#### **Interview Protocol Sample Questions**

Question 2	What types of <b>support</b> do you receive from your home institutions? Is there a team facilitating your MOOCs design?
Question 4	What do you think of the <b>responsibility</b> of instructors to facilitate students' SDL skills in MOOCs?
Question 5	How do you think the design and delivery of your MOOC can help develop students' self-management skills 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**

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

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### Finding 1: Self-management

 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).

"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)

"If you do videos that are 20-min long, that's sad, but they are not going to last. If you do <u>5 videos of 3 minutes eac</u>h, in comparison to one of 20 minutes, or something like that, it's gonna be different." (Echa)

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#### Finding 1: Self-management

 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.

"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)



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

"...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)

"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)

#### Finding 3: Motivation

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.

"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)

"We manage motivation with <u>a lot of visual aids</u>, just like dynamics, not like try to make like short videos, show something to make a question, something have to interact..." (Daniela)

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#### Study #5

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

Zixi Li, Chen Feng, Xiaoying Zheng, Dr. Curtis J. Bonk



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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).
- Not all the teachers in different fields receive adequate PD support from education systems (Mushayikwa & Lubben, 2009).
- 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 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 Design Explanatory sequential mixed methods design (Creswell & Clark, 2017) Survey: • Olunteer 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

# Research Questions

- 1. How do MOOC instructors perceive participant SDL skills?
- How do MOOC instructors perceive their facilitation of participant SDL skills?
- 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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#### **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 Meta-cog	MOOC instructors provided quizzes for self-assessment, tutorial on technology use, learning advice, navigation of the course progress indicators, resources, and instructional modeling, etc. 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: S	trategies to Facilitate SD
They helped students' se learning goals, time man management although an instructors had less contr	If-management concerning setting agement, resources and support mong the three elements of SDL, MOOO rol 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	Providing flexible learning resources, peer-assessment,
support	accessibilities, clear expectations, and short learning units.

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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 selfmanagement.
- 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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#### **Related Publications**

- Zhu, M., Bonk, C. J., & Doo, M.-Y. (2020). Self-directed learning in MOOCs: Exploring the relationships among motivation, self-monitoring, and selfmanagement. *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 selfmonitoring 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.

# Study #7 MOOC Learners and SDL Xhu, M., Bonk, C. J., & Berri, S. (2022). Fostering self-directed learning in MOOCS: Motivation. Joline Learning.

**Research Questions** 

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

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	Parti	cipant Den	nographics
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Pseudonyms	Gender	Countries	Occupations
Abdulrahman	М	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
loe	M	The UK	Retired engineer
Melena	F	Germany	Student
Mostapha	F	Egypt	Student
Sandy	F	The US	Student
Sarah	F	The US	Between jobs
Conhio	F	The Metherlands	Patirad office menoper

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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 yery 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.

# **RQ2: Learning Strategies**

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[5], right. Everyone starts a MOOC at the same time, but you see that these weeks you progress faster than other members in the MOOC."

#### **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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#### 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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- (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,



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/10.1080/0260651.2022.2141.05

(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.



Set your schedule $ imes$
✓ 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 End time
8:30 AM V 9:00 AM V





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#### #6. Supplying timely and constructive feedback.

#### <u>Quiz</u>

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













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



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