Important elements to consider while developing a low-cost Just-In-Time-Online-Training (JITOT)

Curriculum design in limited time

Assessment & Evaluation

Just in Time Online Training
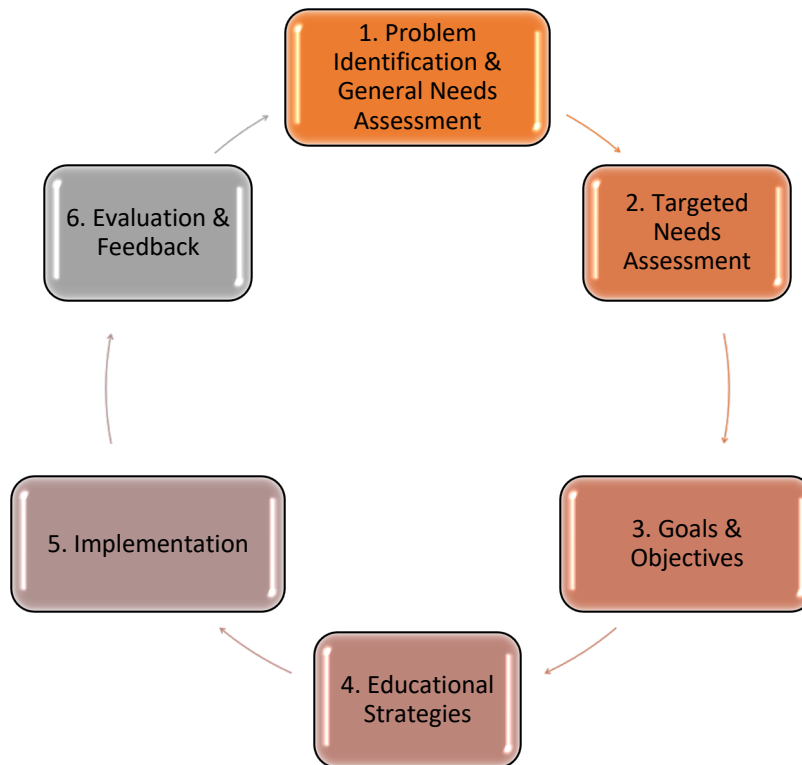
Cost

Available resources

Reach (platform)
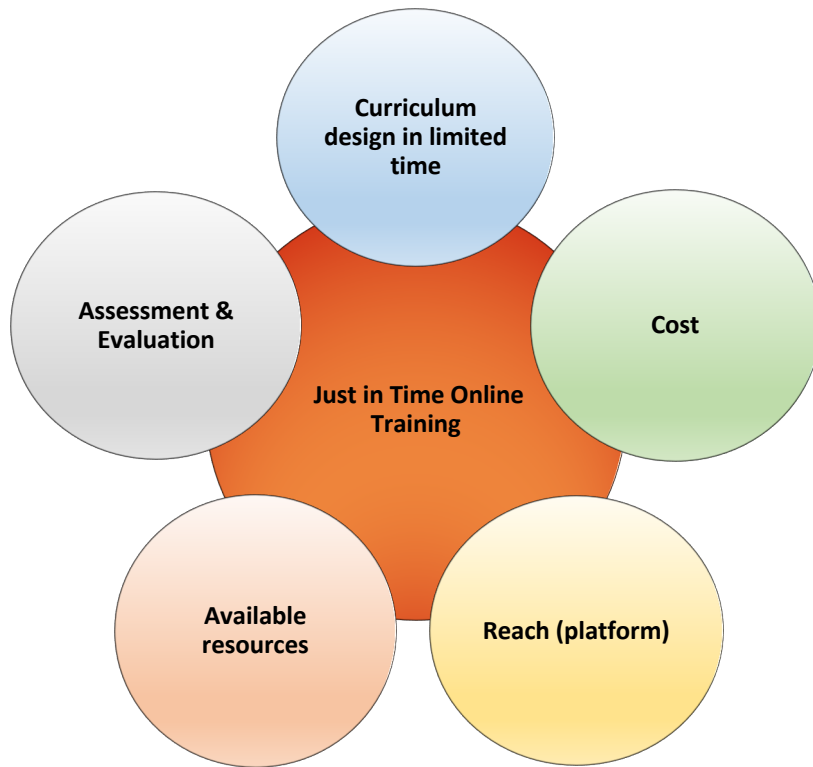
- Plan accordingly to meet the needs of your learners.

- You can skip general needs assessment and targeted needs assessment if the problem is prevalent or identified already. It saves you time.

- Consider a platform that is free/cheap/easy to use, and widely available.

- You might already have some resources available; at times, it is easy to reach out to other departments to see if they have some resources that you can use or get some help from them (IT, Marketing, Tele-medicine).

- Think of assessment and program evaluation levels early. Assessment of achievement of learning objectives helps you demonstrate your program's overall success at different levels of program evaluation.

Curriculum Development:

JITOT Curriculum Development is based the Kern's Six-Step Model. Some Steps such as General Needs Assessment or Targeted Needs Assessment may be skipped if the problem is already known. Although these steps can be added on later for curriculum revision and improvement.[1]

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         ┌──────────────────┐
         │  1. Problem      │
         │  Identification &│
         │  General Needs   │
         │  Assessment      │
         └──────────────────┘

┌──────────────┐                    ┌──────────────┐
│ 6. Evaluation│                    │ 2. Targeted  │
│ & Feedback   │                    │ Needs        │
│              │                    │ Assessment   │
└──────────────┘                    └──────────────┘

┌──────────────┐                    ┌──────────────┐
│ 5.           │                    │ 3. Goals &   │
│ Implementation│                   │ Objectives   │
└──────────────┘                    └──────────────┘

         ┌──────────────────┐
         │  4. Educational  │
         │  Strategies      │
         └──────────────────┘
```

Goal: Is a broader statement, intended to provide a general idea of outcome

SMART Objectives:

- Specific: "What will your learners achieve?"
- Measurable: "How the achievement of the objective is measured?"
- Achievable: "Is this objective achievable (logistically)? Is this objective aligned with the needs of the learners?"
- Timely: "Is there sufficient time to achieve this objective?"

Writing a SMART objective:

Who (learners) will **do** (Bloom's action verb**) **how much/how well** (criterion of performance) of **what** (a noun that describes a performance) **by when** (condition of the performance)?[1]

Example:

"Participants will explain the correct head position for nasal swab insertion by the end of this one-hour JITOT session."

**Please refer to the revised Bloom's Taxonomy of Learning Objective[2]

KNOWING or REMEMBERING	COMPREHENDING or UNDERSTANDING	APPLYING	ANALYZING	SYNTHESIZING or EVALUATING	CREATING
Cite	Arrange	Adapt	Analyze	Assess	Adapt
Define	Associate	Apply	Appraise	Assemble	Anticipate
Draw	Classify	Compute	Detail	Build	Collaborate
Enumerate	Convert	Coordinate	Determine	Choose	Combine
Find	Describe	Demonstrate	Calculate	Compare	Communicate
Label	Discuss	Develop	Categorize	Construct	Compose
List	Explain	Dramatize	Classify	Debate	Construct
Locate	Exemplify	Employ	Compare	Estimate	Create
Match	Identify	Establish	Contrast	Formulate	Design
Memorize	Interpret	Examine	Correlate	Generate	Facilitate
Name	Locate	Extrapolate	Critique	Hypothesize	Forecast
Recall	Match	Illustrate	Defend	Integrate	Generate
Recite	Paraphrase	Implement	Detect	Judge	Initiate
Record	Report	Instruct	Dissect	Justify	Model
Recognize	Research	Interview	Distinguish	Manage	Negotiate
Select	Sort	Manipulate	Examine	Organize	Organize
State	Summarize	Modify	Inspect	Predict	Perform
Tabulate	Translate	Operate	Inventory	Prescribe	Plan
		Order	Research	Prepare	Produce
		Practice	Solve	Prioritize	Propose
		Predict	Summarize	Produce	Reconcile
		Prepare	Test	Propose	Revise
		Produce		Recommend	Resolve
		Utilize		Structure	Structure
				Synthesize	Substitute
Teaching Strategies	**Teaching Strategies**	**Teaching Strategies**	**Teaching Strategies**	**Teaching Strategies**	**Teaching Strategies**
Lecture	Questions	Practice	Problem solving	Projects	Simulations
Video	Discussion	Demonstrations	Case Studies	Problem solving	Critiques
Illustrations	Review	Presentations	Critical Incidents	Case studies	Complex case study
Examples	Test	Projects	Discussion	Plan development	Design and development
Visuals	Reports	Role play	Questioning	Constructing	Product generation
	Exercises	Micro-teach	Test	Simulation	Producing

lower order thinking ————————> *higher order thinking*

BLOOM'S TAXONOMY OF LEARNING OBJECTIVES (revised)

UNMC faculty development   www.unmc.edu/facdev

Anderson, L.W., Krathwohl, D.R., Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., Wittrock, M.C. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A revision of Bloom's Taxonomy of Educational Objectives.* New York: Pearson, Allyn & Bacon.
Bloom, B.S. (Ed.). Engelhart, M.D., Furst, E.J., Hill, W.H., Krathwohl, D.R. (1956). *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain.* New York: David McKay Co Inc.

Educational Strategies:

The infographic given here can help to determine the educational strategies that can be used in a JITOT.

ONLINE TRAINING

TOOLS FOR A SUCCESSFUL TRAINING

ANALYZE CONTENT

Determine why the course is needed, and who the audience will be; take inventory of content available and subject matter experts

LEARNING OBJECTIVES

Refer to Bloom's taxonomy and develop learning objectives/learning goals

COURSE FORMAT

Determine the most effective course of action; traditional "read and click", interactive learning, panel discussion, online workshops

PLANNING THE COURSE

Planning and preparing for online training can include an outline, storyboard with visuals, removal of any information or subject matter that does not meet objectives

DEPLOYMENT

Analysis, design, development, application or implementation, and assessment

Educational strategies rely upon the Adult Learning Principles (andragogy) of Malcolm Knowles[5]:

• Learners need to be involved in the planning and evaluation of their instruction.

• Experience (including mistakes) provides the basis for the learning activities.

• Learners are most interested in learning subjects that have immediate relevance and impact on their job or personal life.

• Adult learning is problem-centered rather than content-oriented.

• Educational methods should relate to the objectives, should be more than one if possible, and should be feasible in terms of resources

Training / Program Evaluation:

Phillips ROI Methodology[3] or Kirkpatrick's Model for program evaluation[4] can be used. To keep the program evaluation cost low, one can choose to lower levels of program evaluation.

Level	Measurement Focus	Measurement Goal
1. Reaction & Planned Action	Measures participant's satisfaction and captures planned actions (if needed)	100%
2. Learning & Confidence	Measures changes in knowledge, skills, and attitudes	80 to 90%
3. Application / Change in behavior	Measures changes in on-the-job behavior or actions	30 to 40%
4. Training Impact	Measures changes in impact variables and outcomes	10%
5. Return on Investment	Compares project benefits to the costs	5%

Examples of common methods of program evaluation[3] that can be used for a JITOT:

Methods	Level 1	Level 2
• Surveys	✓	✓
• Questionnaires	✓	✓
• Observation	✓	✓
• Interviews	✓	✓
• Focus Groups	✓	✓
• Tests/Quizzes		✓
• Demonstrations		✓
• Simulations		✓

Methods	Level 3	Level 4
• Surveys	✓	✓
• Questionnaires	✓	✓
• Observations on the job	✓	
• Interviews	✓	
• Focus Groups	✓	
• Action planning/improvement plans	✓	✓
• Performance contracting	✓	✓
• Performance monitoring	✓	✓

References:

1) Thomas PA, Kern DE, Hughes MT, Chen BY, editors. Curriculum development for medical education: A six-step approach. 3rd ed. Baltimore, MD: Johns Hopkins University Press; 2016.

2) UNMC Faculty Development. BLOOM'S TAXONOMY OF LEARNING OBJECTIVES (revised) [internet]. Unmc.edu. [cited 2021 Feb 19]. Available from: https://unmc.edu/com/_documents/blooms-taxonomy-lo.pdf

3) Phillips JJ, Phillips P. Handbook of training evaluation and measurement methods. 4th ed. London, England: Routledge; 2016.

4) Kirkpatrick DL, Kirkpatrick JD. Evaluating training programs: The four levels: The four levels. 3rd ed. San Francisco, CA: Berrett-Koehler; 2006.

5) Pappas C. The Adult Learning Theory - Andragogy - of Malcolm Knowles [Internet]. Elearningindustry.com. eLearning Industry; 2013 [cited 2021 Feb 22]. Available from: https://elearningindustry.com/the-adult-learning-theory-andragogy-of-malcolm-knowles