

Evaluation of Pre-service Teachers of Google for Education Online Training Modules



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21st century teachers and pre-service education



- Role to develop information, media and technology skills among their students (Partnership for 21st Century Skills, 2015)



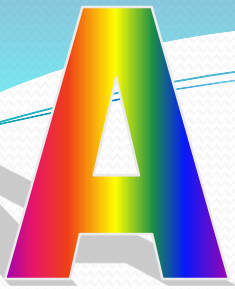
- Be able to design and develop digital age learning experience and assessments, modeling of digital age work and learning (International Society for Technology in Education, 2015)



- Need exposure to pedagogical methods of incorporating various technologies in their teaching (Snider 2003 as cited by Oakley 2008)



- E-learning (electronic learning) is a type of learning and teaching wherein the activities are mediated by Information and Communication Technologies (ICTs) (Naidu, 2006)
- Improves not just student learning but other factors such as technological application skills (Kuo, Song, Smith, & Franklin, 2007; US Department of Education, 2010; Shachar & Neumann, 2010)
- Advantageous in terms of offering more flexibility and convenience of learning (Jaggars, 2013; Rashty, n.d.)

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- ttention

A large, 3D-style letter 'R' with a rainbow gradient from red at the bottom to blue at the top. It has a soft shadow cast to the left and slightly forward.

- elevance

A large, 3D-style letter 'C' with a rainbow gradient from red at the bottom to blue at the top. It has a soft shadow cast to the left and slightly forward.

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- atisfaction

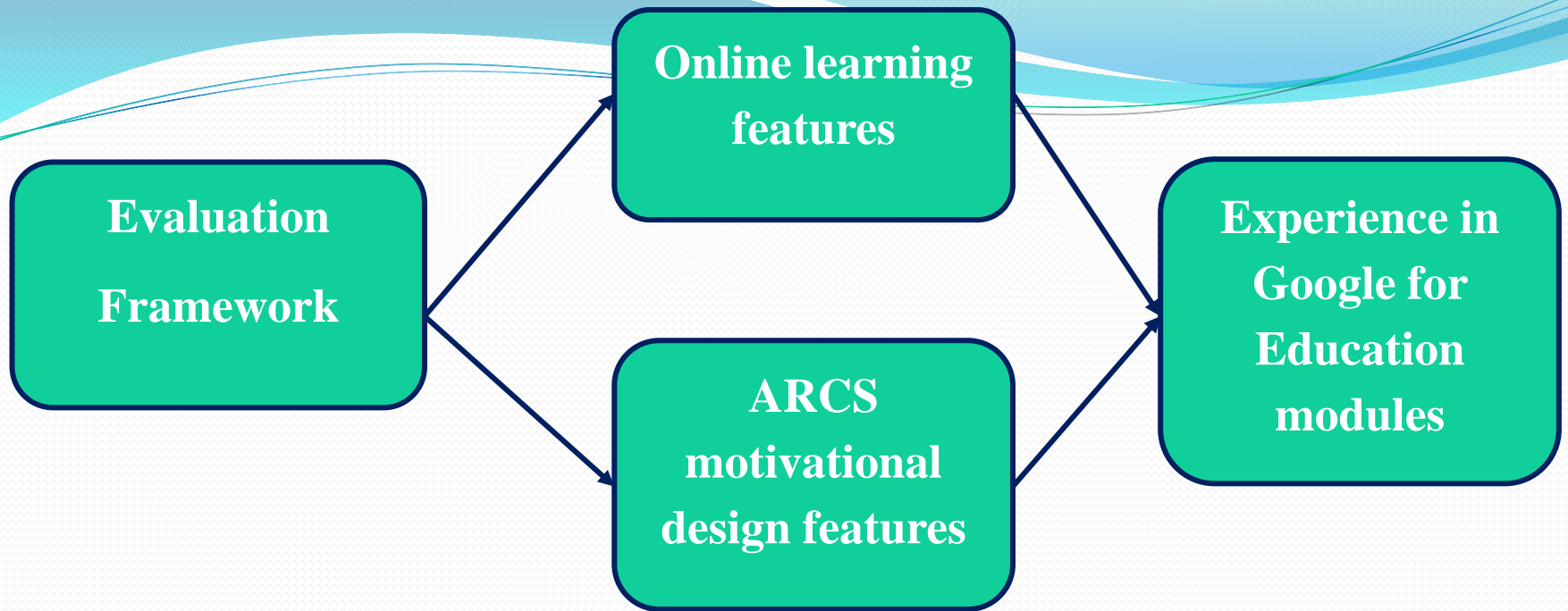


Figure 1. Conceptual paradigm for Evaluation of Pre-service Teachers of Google for Education Online Training Modules



1. What is the evaluation of pre-service teachers of the Google for Education online training modules in terms of:
 - a. Online learning features
 - b. ARCS motivational design features
2. How are the various features related to their experience with the G4E online training modules?
3. Which other factors contribute to their experience?

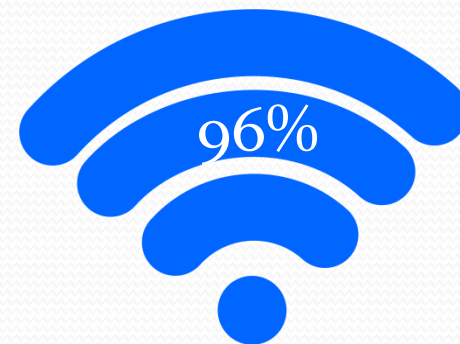
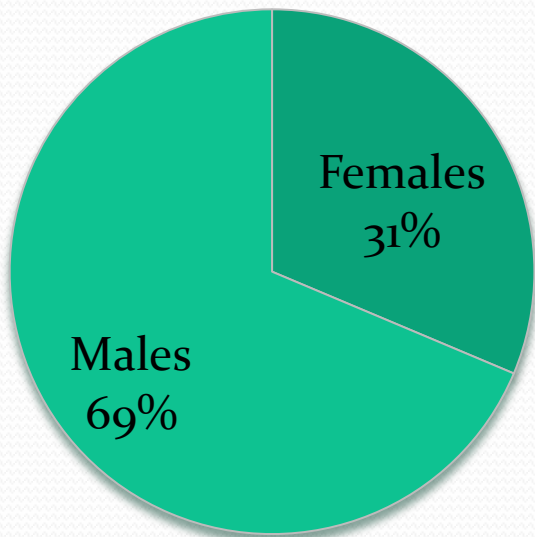
Method

- Descriptive mixed method study
- Sixty-seven (67) pre-service teachers
- G4E Fundamentals Training (13 modules) as part of their Educational Technology (EdTech) course

Google for Education

Method

- A four-part questionnaire via www.surveymonkey.com
 - Part A surveyed the students' profile
 - Part B evaluated the online learning features of the modules adapted from the Lee, Mohammed & Altamimi (2015)
 - Part C evaluated the ARCS motivational design features of the modules using the Instructional Materials Motivation (IMMS) Survey of John Keller (2006)
 - Part D looked into the actual use of G4E modules
- Interview with the students about their experiences
- Mean of evaluation scores, Correlation , T-test and ANOVA



90% Sophomore
95% Full time students
51% Early Childhood Education major



Table 1. Evaluation of G4E modules online learning features

	Mean	SD	Verbal Interpretation
<i>Quality of Online Learning</i>	3.36	0.71	Highly Appropriate
Ease of accessing the system	3.34	0.73	Highly Appropriate
Speed of accessing the system	3.34	0.66	Highly Appropriate
Feasibility of learning online	3.40	0.74	Highly Appropriate
<i>Flexibility of Online Learning</i>	3.42	0.76	Highly Appropriate
Can plan own learning schedule	3.42	0.80	Highly Appropriate
Can learn at own pace, anytime, anywhere	3.54	0.70	Highly Appropriate
Can learn independently without a teacher	3.31	0.76	Highly Appropriate
Online Learning Features	3.39	0.73	Highly Appropriate

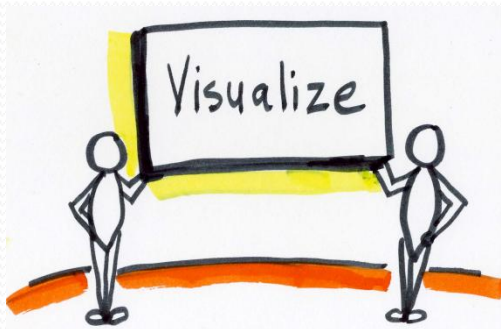
Table 2. Evaluation of G4E modules motivational design features

	Mean	SD	Verbal Interpretation
Attention	3.29	0.89	Moderately true
Relevance	3.52	0.87	Mostly true
Confidence	3.28	0.88	Moderately true
Satisfaction	3.49	0.87	Mostly true
Motivational design	3.40	0.88	Moderately true

1. S: “Completing the exercises in the modules gave me a satisfying feeling of accomplishment” ($M = 3.82$, $SD = 0.88$, Mostly true)
2. S: “It felt good to successfully complete the modules” ($M = 3.82$, $SD = 0.99$, Mostly true).
3. R: “The content of the modules will be useful to me” ($M = 3.68$, $SD = 1.01$, Mostly true).

1. C: “Many of the pages had so much information that it was hard to pick out and remember the important points” ($M = 2.64$, $SD = 0.95$, Moderately true)
2. C: “The modules were more difficult to understand than I would like for it to be” ($M = 3.05$, $SD = 0.95$, Moderately true)
3. A: “The amount of repetition in the modules caused me to get bored sometimes” ($M = 2.71$, $SD = 0.94$, Moderately true)

Other design considerations



- More visuals (presentations and videos) and interactions on the modules and not simply texts



- More output-based activities to try out the concepts is better instead of simply learning in way of information which they tend to easily forget.

Experiences using G4E modules

- 67% Accessed the module once a week
- Duration of access is either for 31-60 minutes (37%) or less than 30 minutes (35%)
- 49% mentioned that they accomplish the modules late or have backlog
- 31 out of the 67 participants (46%) were able to finish all 13 modules
- 53% mentioned intention to take another G4E online training modules
- 44% mentioned willingness to take the G4E certification exam



Challenge:
Lack of time (management)

Table 3. Correlation table of G4E modules design features and experience

		1	2	3	4	5	6	7	8	9	10	11	12
1	Quality of OL	-	.87**	.97**	.24	.41**	.19	.32**	.34**	-.10	.28*	-.09	.087
2	Flexibility of OL		-	.97**	.18	.45**	.20	.35**	.35**	-.12	.18	-.12	.007
3	OL Features			-	.21	.45**	.20	.35**	.36**	-.11	.24	-.11	.048
4	Attention				-	.76**	.47**	.71**	.88**	.15	.06	.06	.078
5	Relevance					-	.57**	.87**	.94**	.06	.09	.03	.156
6	Confidence						-	.52**	.72**	.08	-.23	.21	.209
7	Satisfaction							-	.90**	.20	.14	.07	.239
8	ARCS								-	.14	.03	.09	.186
9	Frequency									-	.13	.44**	.336**
10	Duration of access										-	-.11	.134
11	Completion rate											-	.418**
12	Completed modules												-

Note: **. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)



Challenge:
Slow, weak and unstable
internet connection

Frequency leading to success

- Frequency of access correlates with number of completed modules, $r(63) = 0.336$, $p < .01$
 - Significant difference between those who access the modules once a week and those who access the modules 2-3 times a week, $t(58) = 3.106$, $p < .05$
- Frequency was also associated with completion rate, $r(63) = 0.44$, $p < .01$ and willingness to take another G4E training module, $r(63) = 0.383$, $p < .01$



Preventing Backlogs

- Completion rate is also correlated with number of completed modules, $r(63) = 0.418, p < .01$
 - There was a statistically significant difference between groups, $F(2,58) = 7.565, p < .01$
 - Number of modules completed was statistically significantly lower for those who accomplish the modules late compared to those who accomplish them on time ($p = .004$) and for those who completed the modules in advance ($p = .015$)



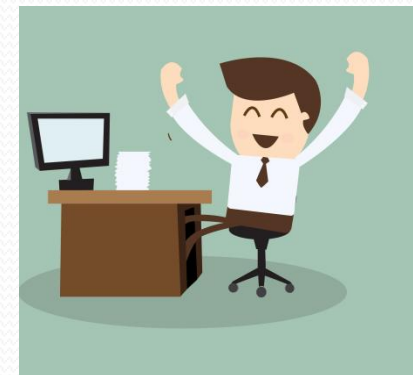
Carry over effect

- Willingness to take another G4E training correlates significantly with all dimension of the ARCS model except for the Confidence dimension
- Significant difference for those who expressed willingness to take another module in:
 - Attention, $t(61) = 2.767, p < .01$
 - Relevance, $t(61) = 3.011, p < .01$
 - Satisfaction, $t(61) = 3.403, p < .01$
 - ARCS rating, $t(61) = 3.270, p < .01$



Carry over effect

- Willingness to take G4E certification exam correlates with Confidence and Satisfaction dimensions
- Significant differences for those who expressed willingness to take the certification exam in:
 - Confidence, $t(50) = 2.285, p < .05$
 - Satisfaction ratings, $t(50) = 2.321, p < .05$



Other factors affecting experience

- Year level was correlated with frequency of access, $r(63) = 0.275$, $p < .05$ and highly correlated with duration of access, $r(63) = 0.332$, $p < .01$
- There was also an observed association between student status and frequency of access, $r(63) = 0.286$, $p < .05$, with part time students (working students) accessing the G4E modules more than full time students
- Degree also correlated with frequency of access, $r(63) = 0.253$, $p < .05$, with Science Education major students accessing the module more frequently than students in other majors

Conclusions and Recommendations

- ✓ Highly appropriate ratings for the online learning features
 - Quality of online learning (i.e. speed of internet access) was rated as the primary online learning feature, contributing specifically to the duration of their access.
- ✓ Mostly true evaluation of the ARCS motivational design features
 - The satisfaction dimension was rated as the primary feature affecting their experience with the modules.
- ✓ Frequency of access was also seen as a factor for completion of the modules.

Conclusions and Recommendations



- Provide adequate internet access to students taking the modules. A computer laboratory schedule can be given as an option for these students to secure such access



- A good practice to recommend a schedule of what modules to complete, but reminding them to follow the schedule is of importance as well as to prevent backlog



- Hands-on activities can also be designed which will ask students to produce outputs based on the content of the modules

Conclusions and Recommendations

- Look into results of certification exam among the students to determine whether long term learning transpired
 - Students that will pass the certification training can in turn be tapped to assist future students who will take the G4E training modules
- Look into other factors that can play a role to students' success and acceptance of the G4E training modules

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