Exploring motivation and design effectiveness of Individualized English as a Foreign Language blended training programs in a French organization.

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Abstract: This communication's objective is to present findings of a field research comparing the effectiveness of four types of English as a foreign language (EFL) training designs. Training modalities included individual or group face-to-face sessions, virtual phone classes, and autonomous e-learning activities. French collaborators (N = 142) of a company from the health industry completed motivation surveys and took the online BULATS business proficiency test at the end of training. Trainees who followed blended training programs obtained higher BULATS scores than those who only used face-to-face sessions, but results are moderated by participants' pre-training proficiency level. Training design had no influence on satisfaction, but low e-learning acceptance influenced the choice of face-to-face sessions. Accessibility to the e-learning platform was related to an increase in autonomous study time, in particular when the program did not contain face-to-face sessions. Limitations and directions for future research are also discussed.

Introduction

Advances in communication technologies have considerably modified our learning practices and opportunities to learn from anywhere in the world, at any time. In their way, they put forward learner-centered approaches advocated in socio-constructivist theories (Anderson & Dron, 2010). While the concepts of e-learning and blended learning become popular, their definition and scope still raise questions (Graham, Henrie, & Gibbons, 2014; Hubackova, 2015). For this research, characteristics which reached a general consensus were retained. E-learning encompasses all learning/teaching environments supported by digital technologies, which facilitate the accessibility, distribution and sharing of knowledge (Hubackova, 2015). It includes, but is not limited to, off-line computer applications, web-based or mobile learning resources, forums and other social networks. Nowadays, videoconference tools (i.e. virtual classes with whiteboards, chatrooms) stimulate learners/teachers synchronous interactions (Falloon, 2011). The development of e-learning platforms to structure distance learning activities has also provided new means to support learners' efforts and follow their progress. While e-learning is opposed to the traditional face-to-face format, blended learning combines face-to-face and online modalities (Graham, 2013; Hubackova, 2015). Several studies on blended learning highlighted a positive relationship between social interactions, student engagement in learning and course satisfaction (Graham, 2013).

Despite the opportunity for time and space flexibility, e-learning technologies accounted for only 41% of learning hours in organizations in 2016, according to the Association for Talent Development (ATD) State of the Industry report (Ho, 2016). Beliefs about digital technologies determine the level of acceptance and the intention to use online learning (Fenouillet & Kaplan, 2012). For a long time, e-learning was considered inappropriate for foreign language learning, because of the limited opportunities for contact (Hubackova, 2015). Blended learning appears a good alternative provided that the program is carefully designed. Contradictory findings in blended learning efficiency could be related to the difficulty of conceptualizing training designs which also depend on the learning context. Most studies are conducted in academic settings. However, organizational training design tends to be linked to the opportunities of application of the acquired skills and the technological tools available at work.

The aim of the present study was to compare the effectiveness of different multimodal training designs used in organizations, and the underlying relationship between trainees' motivations and modalities. Our French industrial partner wanted to assess the return on expectation of their new English as a Foreign Language (EFL) e-learning and blended training programs. For international organizations with non-native English-speaking employees scattered around the world, English-language proficiency is a crucial factor to build a common business culture and facilitate employee commitment to the globalization process of their firm (Yamao & Sekiguchi, 2015).

Research method

Participants, modalities and procedure

The study was conducted in the French branch of a multinational from the health industry[1]. Email invitations were sent to collaborators who had registered to EFL training programs in 2016 and a consent form was provided online. Out of 209 volunteers recruited at the beginning of their training, 142 completed both pre-training surveys and post-training questionnaires sent a week before the launch of the post-training certified business test. The sample was composed of 66,2% females and 33.8% males of mean age 43.9 years (SD = 6.77). The proficiency level was assessed with a computer test during the registration process (described in the measures section). It ranges from a scale of A1 (beginner) to C1 (proficient), based on the Common European Framework of Reference for Languages (CEFR) (Verhelst, Van Avermaet, Takala, Figueras, & North, 2009). Participants' proficiency level was distributed as follows: 28.9% basic users of English (level A1 and A2), 54.9% low level independent users (level B1), 14.1% high independent users (level B2), and 1.4% effective operational proficiency users (level C1).

The EFL training partner of the company assigned the modalities and the number of hours with learning instructors to each trainee, according to his/her initial proficiency level, business needs, and his specific preferences. Researchers analyzed the training designs and categorized them depending on the type of interaction (with trainer or autonomous online activities), time (synchronous or asynchronous) and space (distance or face-to-face). Table 1 shows the distribution of the sample and mean training hours, along four types of designs:

1. *Face-to-face* designs are composed group and individual traditional face-to-face (or on-site) modules with trainers (several one-hour classes or two days thematic modules).
2. *Synchronous mix* include face-to-face sessions and phone classes with a trainer or tutor (from 30 minutes to one hour); in phone classes, trainers can interact with trainees through an online whiteboard and chat as in a virtual classroom, and a written report was sent by mail after each class.
3. *Distance learning* designs include both phone classes (in virtual class mode) and the autonomous access to the EFL e-learning platform 24 hours a day, with written, audio and video resources as well as quizzes; e-learning accounts were accessible from a computer and a mobile application.
4. Full blend designs are composed of face-to-face and distance modalities described above (face-to-face, virtual-phone classes, and e-learning platform); 48% participants were assigned this design.

It is important to stress out that while trainees could request specific modalities and subjects to study, the training partner could plan other modalities. Flexibility lied mainly in the choice of time and place for phone and e-learning platform activities, and the selection of dates for on-site classroom sessions. A trainee was allocated a given number of synchronous sessions with trainers that he was able to postpone or cancel depending on his/her availability (14% of unused allocated hours). Completion rates being out of scope of this study, real training hours are reported.

Modalities	N	Pre-training level[a]			Total hours	EL platform	BULATS
		Basic	Average	High	M (SD)	Hours M (SD)	Scores M (SD)
1. Face-to-face *(Group and individual)*	16	68.8	25.0	6.3	21,04 (11,73)		38.27 (18.93)
2. Synchronous mix *(face-to-face and phone class)*	28	28,6	53.6	17.9	17,28 (8,34)		49.77 (19.42)
3. Distance learning *(Phone class and EL platform)*	26	23.1	57.7	15.4	64,38 (29,60)	55,43 (22,67)	53.42 (18.10)
4. Full Blend *(Mix face-to-face and distance)*	72	22.2	61.0	16.7	52,73 (18,56)	38,50 (18,81)	56.07 (15.80)
	142	28.9	54.9	15.5	44,33 (25,86)	42,86 (21,11)	52.38 (17.99)

Note. M = mean ; SD = Standard Deviation. CEFR = Common European Framework of Reference for Languages; EL platform = e-learning platform . BULATS = Business Language Testing Service. [a]Based on CEFR levels identified by the training partner: Basic = basic users A1 and A2; Average = low level independent users B1; High = high independent users B2 and operational proficiency users C1(2 participants).

Table 1. Distribution of respondents and average learning time by modality

Measures

The total number of learning hours is a sum based on the recorded time spent in face-to-face, phone sessions and autonomous e-learning activities. Only the total number of hours and time of spent on the e-learning

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platform were used for the present study (see means and standard deviations in Table 1). Besides, participants' scores at the pre-and post-training computer tests were collected. They both measured reading, listening and grammar usage abilities through multiple-choice, read and select, fill-in the gap questions. The pre-training test conceived by the company's EFL training partner was composed of 97 questions, each valued one point. Participants had to complete the test in one hour at their convenience, on their own computer. The post-training test was the online version of the BULATS (Business Language Testing Service) certification of English proficiency (Cope, 2009). It was therefore taken in formal exam conditions, that is, in a room with a certified supervisor. In this adaptive computer test which could last up to two hours, questions are determined by the candidate's previous answers. The candidate's score is a percentage over 100 (M = 52.38; SD = 17.99; see Table 1).

Participants completed two psychometric scales at the beginning of their training. The Adult Education Motivation Scale (Fenouillet, Heutte, & Vallerand, 2015) assessed trainees' motivations to follow this training along a on a 5-point Likert scale (1 = 'do not agree at all'; 5 = 'completely agree'). It is based on self-determination theory (Deci & Ryan, 2008) stipulating that people's motivations depend on a set of external and internal sources and can be placed along a continuum. There are six 4-item subscales : *amotivation* represents the absence of motivation (α = .67); *external regulation* (α = .76) and *introjected regulation* (α = .83) are two forms of controlled motivation, meaning that behavior is motivated rather by external constraints such as rewards and punishments; *identified regulation* (α = .82) and *integrated regulation* (α = .88) are two forms of autonomous motivation indicating that beliefs, attitudes, behaviors which once came from external sources have been integrated to the value system or sense of self; and *intrinsic motivation* (α = .81) represents the highest level of autonomy.

The questionnaire of Fenouillet and Kaplan (2012) based on the Technology Acceptance Model was used to assess trainees' attitude toward distance learning versus face-to-face courses. This 15-item scale is composed of 4 subscales rated on a 7-point Likert scale: *Perceived usefulness* of online learning (PU, 5 items, α = .93); *Perceived ease of use* of online technology (PEOU, 3 items, α = .84), *Perceived Flexibility* of face-to-face classes (PF, 4 items, α = .81), and *Attitude toward using technologies* (ATT, 3 items, α = .97).

Satisfaction was measured at the end of the training with a multimodal participant reaction scale adapted from Yennek (2014) face-to-face scale and Yennek, Fenouillet and Heutte (2015) satisfaction scale for MOOCs. A 7-point Likert scale was used to assess the agreement of participants with three dimensions: *Perceived Difficulty* of the content (α = .86); *Perceived Utility* of training (α = .94); and the *Perceived Pedagogical Approach*, including animation techniques and organization of resources (α = .92). The scale's construct was previously validated with 2 744 participants from the same company who had followed a variety of face-to-face and blended training programs.

Main Findings

Data treatment was implemented with SPSS V22. The good reliability of each subscale was confirmed by Cronbach's alphas coefficients above the recommended .70 threshold, apart from the amotivation subscale whose alpha was just below the limit (α = 0.67). The skewness and kurtosis indices did not significantly deviate from non-normal distribution threshold of ±2 (Gravetter & Wallnau, 2016), except for the amotivation subscale. Descriptive statistics and correlations between each subscale score and learning hours are summarized in Table 2.

Correlations showed that the BULATS and ATOLL scores were strongly and positively correlated (r = .78, p < .01), indicating that the post-training proficiency level is strongly related to the initial proficiency level. Besides, Perceived difficulty was negatively related to BULATS score (r = -.44, p < .01), indicating that the lower the perceived difficulty in English learning, the higher the score at the BULATS. Also, a positive moderate relationship was found between the positive perception of the pedagogical approach and the number of e-learning hours (r = .35, p < .01), and to a lesser extent the total number of hours including face-to-face and virtual phone classes (r = .26, p < .01). Regarding the motivation scale, we observed that introjected regulation was moderately related to e-learning hours (r = .23, p < .05), but not autonomous motivation. This suggests that doing potential online activities could be perceived as a constraint. Surprisingly, no significant relationship was found between the number of e-learning hours (M = 42.86, SD = 21.11) and the perceived ease of use of technology (r = -.06, p = *ns*), nor with the attitude towards using e-learning (r = .08, p = *ns*). However, a complementary analysis with the hours of synchronous modalities confirmed a negative relationship between the number of hours of phone classes and flexibility of face-to-face classes (r = -.19, p < .05), and between the number of hours of face-to-face classes and the positive attitude towards using e-learning (r = -.24, p < .05).

A one factor ANOVA was then implemented to compare the means of each factor for each type of training design (*Face-to-face, Synchronous mix, Distance learning, and Full Blend*). Means and standard deviations of BULATS scores are reported in Table 1. Post hoc tests were conducted with Bonferroni adjustment. A main effect of the type of design was found for BULATS scores, $F(3, 133) = 4.60$, p < .01. Results show that f*ull blend*

programs (M = 53.75; SD = 12.66) and *distance learning* designs (M = 53.36; SD = 10.64), and *synchronous mix* (M = 52.57; SD = 13.20) are more effective than face-to-face training alone (M = 39.13; SD = 15.62). Nevertheless, this relationship is moderated by the pre-training proficiency level, when controlled. The synchronous mix involving both face-to-face and virtual phone classes seem more efficient than training designs including the e-learning platform: the BULATS scores are almost identical, while number of hours spent in training (M = 16.75; SD = 8.03) is significantly lower than in *distance learning* (M = 70.57; SD = 24.87) and f*ull blend* (M = 53.07; SD = 20.67). The main effect on training hours ($F(3, 138) = 49.48$, $p < .01$) can be explained by the number of hours spent on autonomous on-line activities, reflecting participants' engagement in learning. It appears that the fact of following face-to-face sessions in f*ull blend* (M = 38.50; SD = 18.81) tends to reduce the time dedicated to e-learning activities, when compared to *distance learning* (M = 55.43; SD = 22.67).

Besides, no significant main effect was found regarding the ANOVA with the three post-training reaction factors ($p = ns$), indicating no significant impact of training design and efficiency on trainees' satisfaction. However, a main effect was found for *identified regulation* ($F(3, 138) = 2.72$, $p < .05$) and *integrated regulation (*$F(3, 138) = 2.96$, $p < .05$), two forms of autonomous motivation related to the value granted to the activity (Deci & Ryan, 2008). Both means are significantly higher for distance learning modalities than face-to-face. Concerning the synchronous mix design, the score of *integrated regulation* was the lowest (M = 2.20; SD = 1.10) while the score *Identified regulation* was slightly higher (M = 4.09; SD = .71), highlighting that participants were essentially centered on operational goals rather than on identity goals. Interestingly, there was no significant difference between modalities for intrinsic motivation, suggesting that the choice of modality is not affected by the interest, pleasure of learning.

Finally, a main effect of training design was found for *Perceived usefulness* ($F(3, 135) = 5.70$, $p < .01$), *Perceived ease of use* ($F(3, 135) = 5.36$, $p < .01$), and *Attitude toward using technologies* ($F(3, 137) = 8.25$, $p < .001$). Trainees using exclusively face-to-face modalities had significantly lower scores than those who followed distance and blended learning programs.

Discussion and conclusion

The first level analysis conducted in this study showed that differences in training design have an impact on programs efficiency and the motivation to use e-learning technologies, but not necessarily on participants' satisfaction. In particular, *full blended* designs provide the highest the mix of modalities while the mean learning time remains lower than in distance learning designs. It also appears that the positive attitude towards online technologies influences the use of e-learning and blended learning modalities. Collaborators who followed face-to-face training sessions were more likely to specifically request this modality over distance learning. Face-to-face training was favored by participants with lower proficiency level. This explains why the BULATS scores results were moderated by the initial level. Complementary analyses are nevertheless needed to better understand the impact of training hours and motivations. The duration of training sessions with tutors was fixed, but trainees could spend as much time as they wanted on the e-learning platform. One limitation relates to the lack of information regarding potential homework suggested by trainers at the end of each face-to-face or phone class. First, participants using the e-learning platform were regularly invited to complete online activities and received email remainders. They decided whether to complete those activities or choose other ones. This could explain the high number of hours spent online and the perception of these activities as external constraints (through the correlation with introjected regulation). Second, it was not possible to assess whether trainers would give some homework and how much time would be spent on those when participants were not registered on the e-learning platform (face-to-face and synchronous mix designs). Homework is not considered a priority in professional contexts. Some employees would rather ask their trainer to tailor learning activities to real tasks they need to complete (i.e., preparation of a meeting). More investigation is needed to deepen the understanding of individual motivations towards EFL training, the related need they intend to fulfill in organizational settings, and whether it can influence the use training designs.

This field research was challenging because of the complex training designs set up by the organization to increase flexibility and context learning. It confirms that "frontiers between distance learning and site-based learning have become blurred" (Fenouillet & Kaplan, 2012, p.213). The method to categorize designs was highly dependent upon the training schemes and the number of participants in each modality. However, results highlighted potential differences between face-to-face and phone sessions with trainers. Complementary studies could focus on group versus individual sessions, or virtual phone classes versus the e-learning platform. Such studies do not only support the usefulness of blended training programs, they can also provide more information on the optimal blended mix for English as a Foreign Language trainings that would suit adult learners' needs.

	N	M	SD	Sk	K	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.E-learning Hours	97	42.86	21.11	.81	1.16																	
2.Total Hours	141	45.30	26.91	.61	.06	.97**																
3.BULATS Score	134	52.38	18.00	-.02	-.74	-.20	.10															
4.EFL Pretest Score	141	51.79	13.47	-.62	.26	-.14	.08	.78**														
5.SDT - Amotivation	142	1.18	.41	2,75	7.49	.09	-.01	-.11	.00	(.67)												
6.SDT - External Regulation	142	1.99	.91	.56	-.64	.09	.11	-.12	-.12	-.03	(.76)											
7.SDT - Introjected Regulation	142	2.07	.99	.60	-.62	.23*	.22**	-.29**	-.28**	.03	.41**	(.83)										
8.SDT - Identified Regulation	142	3.86	.93	-.89	.09	-.02	.02	.04	.00	-.31**	.47**	.15	(.82)									
9.SDT - Integrated Regulation	142	2.69	1.08	.15	-.88	.00	.17*	-.03	.07	-.09	.26**	.39**	.04	(.88)								
10.SDT - Intrinsic Motivation	142	3.78	.83	-.90	1.06	-.08	.05	.11	.08	-.13	.12	.24**	.14	.61**	(0.81)							
11.TAM - Perceived Flexibility	135	4.50	1.24	-.38	.58	.00	-.02	-.08	.02	.10	.21*	.09	.14	.16	.13	(.91)						
12.TAM - Perceived usefulness	136	4.94	1.32	-.43	-.16	.02	.19*	.01	.05	-.19*	.27**	.19*	.28**	.23**	.16	.22**	(.93)					
13.TAM - Perceived ease of use	136	4.90	1.35	-.70	.36	-.06	.16	.08	.09	-.29**	.10	.06	.21*	.21*	.16	.08	.88**	(.84)				
14. TAM -Attitude toward using technologies	138	5.08	1.75	-.67	-.37	.08	.24**	.07	.10	-.16	.12	.16	.19*	.15	.04	.14	.83**	.76**	(.97)			
15.Reaction - Perceived difficulty	141	2.91	1.12	.81	1.28	.05	.04	-.44**	-.44**	.24**	.10	.21*	-.04	-.06	-.03	-.01	-.01	-.10	-.08	(.86)		
16.Reaction - Perceived Pedagogical Approach	141	5.23	1.16	-.76	.40	.35**	.26**	.19*	.21*	-.19*	.04	.14	.06	.34**	.23**	.24**	.24**	.24**	.25**	-.46**	(.92)	
17.Reaction - Perceived Utility	141	4.76	1.31	-.73	.59	.06	.12	.24**	.27**	-.29**	.29**	.09	.28**	.25**	.21*	.22**	.31**	.25**	.29**	-.32**	.68**	(.94)

Note. M = mean; SD = Standard Deviation; Sk = skewness; K = Kurtosis. BULATS = Business Language Testing Service; SDT = Self-determination theory scale; TAM = Technology Acceptance Model based scale; Reaction = refers to post-training reaction scale.
** p < .05. ** p < .01. Cronbach's alphas indicated on the diagonal.*

Table 2. Descriptive statistics, reliability coefficients and correlation estimates

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