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The relationship between motivation, learning strategies and choice of environment whether traditional or including an online component

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Abstract

This study examined how students' achievement goals, self-efficacy and learning strategies influenced their choice of an online, hybrid or traditional learning environment. One hundred thirty-two post-secondary students completed surveys soliciting their preferences for learning environments, reasons for their preference, their motivational orientation towards learning and learning strategies used. Findings indicated that most students preferred traditional learning environments. This preference was based on how well the environment matched their personal learning style and engaged them as students. Discriminant analyses indicated significant differences in motivational beliefs and learning strategies; students who preferred traditional environments showed a mastery goal orientation and greater willingness to apply effort while learning. Students who preferred less traditional environments presented as more confident that they could manage a non-traditional class. These findings have implications for understanding students' motivation for learning in diverse educational settings.

Introduction

One of the profound impacts of technological innovations in education is that of offering undergraduate and graduate classes online (Allen *et al*, 2004). Online education is

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similar to other forms of e-learning, such as hybrid or blended courses (face-to-face instruction with online learning), in that all use the Internet and communication technologies to teach students who are not in the same physical location (Tallent-Runnels *et al*, 2006). This situation is clearly distinguished from more traditional learning environments in which no technological mediation of communication between teacher and students is required (see Berge & Collins, 1995; Hiltz, 1994; Kuehn, 1994; Tallent-Runnels *et al*). Research pertaining to why students may prefer an online education environment versus a more traditional classroom is notably sparse. Findings within the motivation literature, as related to education, have suggested that contributors to students' learning preferences include their goals for learning (Ames, 1992), their self-efficacy or perceived competence in learning (Bandura, 1997) and their specific strategies for learning (Pintrich, Wolters & Baxter, 2000). However, explication of how students' motivational beliefs and learning strategies influence their choice of learning environment when an online component is introduced is lacking. This lack is notable given current trends in higher education course offerings. This study was designed to address this gap and examined factors that contributed to individuals' choice of a particular type of learning environment be it online exclusively, hybrid or traditional in nature.

Learners' motivation has been consistently linked to successful learning. For example, Galusha (1997) noted that knowledge about students' motivation may help educators determine which students are likely to participate in and benefit from online education. Similarly, Tallent-Runnels *et al* (2006) asserted that an understanding of learners' motivation is the key for effective instructional design. However, we know little about the motivational beliefs and learning strategies of online education learners. We do know that within traditional settings, students' ability to sustain or increase their willingness to engage in and complete academic activities has been viewed as important for understanding learning and performance (Wolters, 1999). Studies on motivation and learning strategies also have shown that students' motivational beliefs and learning strategies are related to involvement in learning (eg, Pintrich & Schunk, 2002; Pintrich *et al*, 2000; Schunk & Pajares, 2002; Zimmerman, 1989). For example, learning among mastery-oriented students results in more analytic processing of the information; students who are performance oriented process information in a more superficial manner (Ames, 1992).

Motivation in the present study was defined in terms of achievement goals and self-efficacy. Achievement goals are concerned with the reasons or purposes for engaging in academic-related tasks. According to achievement goal theory, there are two contrasting goals: mastery goals and performance goals that explain the 'why' of engaging in academic-related tasks. Mastery goals refer to learners' desires to increase their knowledge, understanding, competence and appreciation of the educational materials (Ames, 1992). Performance goals are concerned with learners' desires to outperform others to demonstrate competence (performance approach) or to avoid demonstrating incompetence (performance avoidance) (Elliot & Church, 1997; Middleton & Midgley, 1997). A mastery goal is concerned with improving one's competence. Individuals who hold

mastery goals engage in learning to develop new skills and acquire knowledge (Ames). As such, these students are intrinsically motivated, exert greater effort in their learning, and use effective and varied learning strategies (Ames & Archer, 1988; Dweck & Leggett, 1988). In contrast, students holding performance goals (approach or avoidance) are concerned with outperforming others and how they are perceived by others. These students are often less engaged in their learning, avoid challenges and are usually extrinsically motivated (Ames & Archer; Dweck & Leggett).

Self-efficacy is another motivational construct that has ramifications for learning. Specifically, self-efficacy refers to students' perceptions about their ability to complete a specific task (Bandura, 1986, 1997). An established finding is that self-efficacy is a strong predictor of academic performance and course satisfaction in traditional classrooms. Findings also show that students with high academic self-efficacy are more flexible in their use of learning strategies than those with low academic self-efficacy (Bandura, 1997).

How students use learning strategies is part of what is referred to as self-regulated learning (Pintrich *et al*, 2000), which concerns students' use of cognitive strategies and metacognition. Strategies of self-regulated learning have been categorised into cognitive engagement, metacognitive strategies and resource management (Pintrich & Garcia, 1994). Cognitive engagement refers to the mental effort students invest in monitoring their comprehension of new material (Corno & Mandinach, 1983). Metacognitive knowledge pertains to students' knowledge of themselves as learners, strategies to use for different tasks and when to use these strategies (Pintrich *et al*; Schneider & Pressley, 1997). Resource management refers to the behavioural component of self-regulated learning and entails using techniques such as time management. Overall, self-regulated learners are proactive and persistent in their learning (Schunk & Zimmerman, 1994), as they show proficiency monitoring and modifying their strategies to achieve their goals (Zimmerman, 1989). Similarly, they show adaptive motivational beliefs and attitudes that are likely to lead to successful learning.

Clearly, motivational beliefs and learning strategies influence academic outcomes. However, research addressing learners' motivation and learning strategies in the selection of a particular learning environment remains limited. In fact, from a motivational perspective, little is known about the type of students who are attracted to certain learning environments and why. Accordingly, this study examined the types of motivation and learning strategies reported by undergraduate and postgraduate students who preferred either online, hybrid or traditional classroom environments and their reasons for those preferences.

Methods

Participants

The participants were 132 ethnically diverse students (20 males and 112 females) from two urban public colleges in New York City, of which nearly 75% were full-time students ranging in age from 18 years old to 39 years old. Approximately 60% of participants

Table 1: Demographics of sample (n = 132)

	n	*%*
Gender		
Male	20	15
Female	112	85
Age		
Below 18	6	5
18–19	30	23
20–22	23	17
23–24	20	15
25–29	36	27
30–39	9	7
40+	8	6
Year of schooling		
Freshman	40	30
Sophomore	1	0
Junior	10	8
Master's	47	36
Doctorate	34	26
Student status		
Full time	98	74
Part time	34	26
Ethnicity		
African American/Black	8	6
Asian American/Asian	11	8
Caribbean	3	2
Hispanic	41	31
White/Caucasian	60	46
Other	7	5
Employment status		
Full time	39	30
Part time	50	38
University/college GA/RA/WS	20	15
Unemployed	22	17

GA, graduate assistant; RA, research assistant; WS, work study.

were enrolled in graduate programmes. All students were enrolled in courses focused on the study of psychology. Over 80% of the students reported never having taken an online class or hybrid class. Over half the sample (55%) reported familiarity with online education courses and over one-third (34%) was familiar with hybrid courses in general. Table 1 presents demographic information about the sample.

Procedure

Nearly all surveys ($n = 119$) were administered in whole class settings at the onset of six unique classes. The remaining 13 respondents completed the survey in a single sitting, in which the first author was present. This approach was used to adapt to students' schedules. Completion time ranged 20–25 minutes.

Instruments

The Patterns of Adaptive Learning Survey (PALS) (Midgley *et al*, 2000) was used to assess achievement goals for learning and consisted of three measures: mastery approach (four items), performance approach (five items) and performance avoidance (seven items). The Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich, Smith, Garcia & McKeachie, 1991) measured students' learning strategies in general and self-efficacy beliefs in the context of online learning environments. Within this questionnaire, seven distinct learning strategies were evaluated: rehearsal (five items), elaboration (seven items), organisation (four items), critical thinking (five items), metacognitive strategies/self-regulation (12 items), managing time and study environment (eight items), and effort regulation/management (four items). Self-efficacy was measured using eight items in which participants indicated the level of confidence in their ability to complete an online education course. All items were evaluated on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). This truncated scale was utilised to reduce the number of responses attributed to uncertainty. See Table 7 for reporting of the scales' alpha coefficients.

Preferences for a particular learning environment, traditional, face to face, online or hybrid, and reasons for those preferences were assessed using a brief questionnaire developed by the first author. This instrument also assessed participants' familiarity and experience with an online or hybrid course and investigated the reasons why participants would take a traditional, hybrid or online course irrespective of their preferred choice of learning environment (see Appendix A for the instrument).

Coding of responses to preferences for learning environment items

The coding of these items was grounded in participants' own words to ensure an appropriate interpretation. This inductive technique has been widely used for characterising students' written or oral justifications of their motivation and learning strategies in a given task (eg, Blumberg, Rosenthal & Randall, 2008; Zimmerman & Martinez-Pons, 1986). The researcher and a doctoral student independently analysed the transcripts and developed a coding scheme. Each reader began the coding process by independently previewing the transcripts to identify themes in participants' responses. Next, the readers met several times to discuss, compare and refine the emerging themes until consensus was reached. The coding scheme developed was based extensively on the responses of the participants supported by the relevant literature concerning students' learning at the higher education level. This process resulted in eight mutually exclusive themes as presented below (also Table 2). Two independent raters coded all participants' comments using these themes and achieved an interrater reliability of 91.48%.

Engaged learning

This theme reflected responses that characterised the learning environment as engaging and interactive. Also captured were responses that stipulated that learning was a social process in which students learned from each other and the professor. Sample comments from one participant representing this theme was '[traditional learning environments are] most effective and valuable because they are challenging with discussion

Table 2: Coding categories for survey-generated responses

Category	*Brief description*	*Exemplary statement*
Engaged learning	Learning that actively involves the students in instruction.	'[Traditional environments are] most effective and valuable because they are challenging with discussion and presentation. Would want in person to ask questions and discuss and integrate the material'.
Learner–instruction match	Congruence with learner's style of professor's learning.	'I am a visual learner, so I take better notes from the lecture in class and remember details from lecture visually'.
Familiarity	Extent of exposure to the environment.	'It [traditional environment] is what I am used to since childhood.'
Course /institution requirement	Refers to course rigour and domain, foundational course and institutional constraints or requirements.	'If I need a pre-requisite course which I am not interested in.'
Lifestyle fit	Convenience to learner's daily life.	'Work and taking care of your family and not able to come and meet face to face'.
Personal control	Locus of control	'[I] like working on my own time and in my own ways'.
Augmented learning	The learning process is enhanced with the inclusion of technology.	'Traditional [learning] is important for fostering important discussions; online can be useful in fostering ideas from face to face interaction and bringing it practically into discussion.'
Innovative learning format	Environment reflects a new way in which academia will be offering education in the future.	'I believe higher education institutions are moving towards this (hybrid courses) in the future.'

and presentation. Would want in person to ask questions and discuss and integrate the material'.

Learner–instruction match

This theme included responses noting that learning environment as incorporating instructional designs deemed congruent with how students learned and allowed them to capitalise on their preferred style of learning. For example, one student stated, 'I am a visual learner, so I take better notes from the professor's lecture in class and remember details from lecture visually'.

Familiarity

This theme pertained to the learner's experience with a given learning environment and their comfort with it. For example, one student noted, 'It is [traditional learning environment] what I am used to since childhood.'

Augmented learning
This theme referred to responses noting how the quality of pedagogical deliveries was enriched through technology. For example, one student noted that 'an online forum with face to face learning allows for more engagement between peers and professors interaction than time in-class sometimes allows.'

Lifestyle fit
This theme referred to the convenience and access allowed via learning environments that accommodated participants' demanding lifestyles and complicated schedules. For example, one student reported that '[I could take an online course, if I] work and taking care of your family and not being able to come and meet face to face'.

Course/academic requirement
This theme reflected issues of course rigour, course prerequisites, academic area and academic constraints. Course rigour captured participants' statements pertaining to the ease or demands of the class. The prerequisite subtheme referred to the necessity of the class. The academic area subtheme pertained to the subject matter of the class, and the academic constraint subtheme reflected restrictions or constraints by the educational institutions.

Personal control
This theme referred to the extent to which participants could set the parameters of their learning such as how and when they completed course assignments and how they engaged in self-regulated learning. For example, one student stated that '[I] like working on my own time and in my own ways'.

Innovation of learning format
This theme included references noting unique and progressive aspects of a given learning environment, as reflected in the comments that 'I believe higher education institutions are moving towards this. So as part of a degree requirement I may come across these (hybrid courses) in the future.'

Results

To examine all data collected, two general sets of analyses were conducted. First, participants' preferences for specific learning environments and reasons for those preferences were examined. Next, the relationship between these preferences and their motivational beliefs and learning strategies were investigated.

Preferences for specific learning environments
Frequency counts indicated that 73% of all participants ($n = 95$) preferred to take traditional learning courses; 25% preferred hybrid ($n = 32$); and 2% preferred online ($n = 3$) courses. These tallies reflect that all but two participants noted a preference. A binomial probability test indicated that participants were significantly more likely to prefer learning environments that were traditional versus those that incorporated some components of online learning, $p < 0.001$. Because so few students preferred online

Table 3: Frequencies in response to preference for learning environment (n = 123)

	Selected learning environment							
	Traditional		Hybrid		Online		Total	
Category	n	%	n	%	n	%	n	%
Learner–instruction match	53	43	10	8	—	—	63	51
Engaged learning	26	21	1	1	—	—	27	22
Familiarity	10	8	—	—	—	—	10	8
Augmented learning	—	—	14	11	—	—	14	11
Lifestyle fit	—	—	6	5	3	3	9	8
Personal control*	—	—	—	—	—	—	—	—
Course/institution* requirement	—	—	—	—	—		—	—
Innovative learning format*	—	—	—	—	—		—	—
Total	89	72	31	25	3	3	123	100

*These categories were not reflected in students' reasons for preferences.

courses, their responses were combined with those preferring hybrid courses to form a new, non-traditional preference group that was used in subsequent analyses. A total of 123 comments were used for the analyses below, unless otherwise noted.

Participants' reasons for selecting a less traditional environment largely focused on augmented learning process (41%), learner–instruction match (29%) and lifestyle fit (26%). The reasons for selecting a traditional environment largely focused on its consistency with learner–instruction match (60%). However, reasons also included engaged learning (29%) and familiarity (11%) (see Table 3).

Participants also indicated why they would attend each of the three learning environments irrespective of their preference. Reasons for attending an online course ($n = 115$) largely emphasised lifestyle fit (59%), followed by course/academic requirement (30%) and personal control (11%) (see Table 4). Reasons for attending a hybrid course ($n = 99$) emphasised augmented learning (51%), lifestyle fit (28%), course/academic requirement (17%) and innovation of learning format (4%) (see Table 5). Reasons for attending a traditional environment ($n = 115$) emphasised engaged learning (50%), learner–instruction match (37%) and familiarity (13%) (see Table 6).

Motivational beliefs and learning strategies

The internal consistencies of the PALS (Midgley *et al*, 2000) and MSLQ (Pintrich *et al*, 1993) scales were assessed using Cronbach's alpha coefficients. Reliability analyses (see Table 7) indicated that overall, the scales yielded acceptable internal consistency. All coefficients exceeded 0.70 and were consistent with those reported by Midgley *et al* and Pintrich *et al*. Table 7 presents the group means and standard deviations for both learning environments. The scores for the scales were above the midpoint, indicating that most of the participants selected positive motivational and learning strategy items.

Table 4: Frequencies based on participants' reasons for taking an online course (n = 115)

Category	*n*	*%*
Lifestyle fit	68	59
Course/academic requirement	34	30
Personal control	13	11
Learner–instruction match*	—	—
Augmented learning*	—	—
Innovation in learning format*	—	—
Engaged learning*	—	—
Familiarity*	—	—
Total	115	100

*These categories were not reflected in this response.

Table 5: Frequencies based on participants' reasons for taking a hybrid course (n = 99)

Category	*n*	*%*
Augmented learning	50	51
Lifestyle fit	28	28
Course/academic requirement	17	17
Innovation in learning format	4	4
Personal control*	—	—
Learner–instruction match*	—	—
Engaged learning*	—	—
Familiarity*	—	—
Total	99	100

*These categories were not reflected in this response.

Correlations between participants' motivational beliefs and learning strategies for the traditional and non-traditional learning environments are presented in Table 8. Most of the variables, such as self-regulated learning, self-efficacy, mastery approach, were either low to moderately positively correlated for both environments. The traditional environment yielded more significant correlations than the non-traditional environment. Notably, for both environments, the effort regulation scale was significantly correlated to all scales, except for those pertaining to performance approach and performance avoidance.

Relationship between preferences for learning environments and motivational beliefs and learning strategies

A discriminant analysis was conducted to determine whether students who selected a traditional learning environment differed significantly from those who selected a non-traditional learning environment given their achievement goals, self-efficacy and learning strategies (see Table 9). All variables were entered into the discriminant analysis

Table 6: Frequencies based on participants' reasons for taking a traditional course (n = 115)

Category	*n*	*%*
Engaged learning	58	50
Learner–instruction match	42	37
Familiarity	15	13
Innovation in learning format*	—	—
Personal control*	—	—
Augmented learning*	—	—
Lifestyle fit*	—	—
Course/academic requirement*	—	—
Total	115	100

*These categories were not reflected in this response.

Table 7: Means, standard deviations and Cronbach's alphas for MSLQ and PALS scales

	Traditional n = 95		*Non-traditional n = 35*		
Predictor variable	*M*	*SD*	*M*	*SD*	*Alphas*
Self-regulated learning	3.00	0.44	2.86	0.40	0.78
Self-efficacy	2.82	0.66	3.15	0.50	0.91
Mastery approach	3.58	0.53	3.36	0.40	0.74
Performance approach	2.50	0.69	2.50	0.70	0.84
Performance avoidance	2.83	0.68	2.89	0.53	0.81
Rehearsal	2.76	0.70	2.65	0.67	0.81
Critical thinking	3.02	0.56	3.05	0.43	0.73
Time/study management	3.10	0.55	2.91	0.51	0.81
Effort regulation	3.26	0.61	2.81	0.49	0.70
Elaboration	3.17	0.52	3.14	0.39	0.79
Organisation	2.72	0.68	2.84	0.64	0.71

Note: Scales range from 1 to 4.
MSLQ, Motivated Strategies for Learning Questionnaire; PALS, Patterns of Adaptive Learning Survey; SD, standard deviation.

simultaneously. The overall Wilk's lambda was significant $\lambda = 0.715$, χ^2 (11, $n = 132$) = 41.07, $p < 0.001$, indicating that the function of predictors (ie, the scales of the MSLQ and PALS) significantly differentiated between choices of traditional and non-traditional learning preferences. The squared canonical correlation coefficient (0.28) indicated that 28% of the variance between the two learning preferences was explained by this model. Classification results indicated that 80% of the cases were accurately classified. The cross-validated results supported original accuracy levels, with 74.6% correctly classified overall (see Table 10). The standardised function coefficients and correlation coefficient revealed that self-efficacy, mastery goal approach and effort regulation best accounted for the differences in traditional or non-traditional

Table 8: Intercorrelations for MSLQ and PALS scales for traditional and non-traditional learning environments

Scales	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
Traditional											
1 SRL	—	0.22*	0.57**	0.08	0.16	0.26*	0.59**	0.55**	0.59**	0.70**	0.46**
2 SEF		—	0.22*	0.05	–0.09	0.00	0.14	0.25*	0.27**	0.30**	–0.07
3 MAP			—	0.19	0.35**	0.36**	0.38*	0.48**	0.50**	0.56**	0.25*
4 PAP				—	0.73**	0.35**	0.17	–0.04	0.02	0.09	0.16
5 PAV					—	0.47**	0.12	0.03	0.14	0.13	0.27*
6 REH						—	0.03	0.17	0.25*	0.26*	0.49**
7 CTH							—	0.17	0.33**	0.66*	0.21**
8 TSM								—	0.73**	0.48**	0.37**
9 EFF									—	0.58**	0.34**
10 ELAB										—	0.32**
11 ORG											—
Non-traditional											
1 SRL	—	0.06	0.54**	–0.16	–0.22	0.08	0.53**	0.53**	0.59**	0.53**	0.45**
2 SEF		—	0.41*	0.13	–0.20	0.03	0.32	0.19	0.41*	0.28	0.20
3 MAP			—	0.14	0.20	0.52**	0.19	0.30	0.44**	0.38**	0.56**
4 PAP				—	0.44**	0.01**	–0.16	0.17	0.04	0.06	0.18
5 PAV					—	0.20	–0.27	–0.18	–0.24	–0.12	0.12
6 REH						—	–0.17	–0.08	0.04	–0.21	0.43**
7 CTH							—	0.25	0.36*	0.55**	0.24
8 TSM								—	0.69**	0.53**	0.64**
9 EFF									—	0.38*	0.43**
10 ELAB										—	0.45**
11 ORG											—

*$p < 0.05$; **$p < 0.01$.

CTH, critical thinking; EFF, effort regulation; ELAB, elaboration; MAP, mastery approach; MSLQ, motivated Strategies for Learning Questionnaire; ORG, organisation; PALS, Patterns of Adaptive Learning Survey; PAP, performance approach; PAV, performance avoidance; REH, rehearsal; SEF, self-efficacy; SRL, self-regulated learning; TSM, time and study management.

Table 9: Discriminant analysis statistics for choice of learning environments (n = 124)

Predictor variable	*Correlation coefficients*	*Standardised coefficients*	*Wilk's*	*F(1,128)*
Self-regulated learning	–0.24	–0.16	0.98	2.83
Self-efficacy	0.38	0.73	0.95	7.04**
Mastery approach	–0.32	–0.41	0.96	5.36*
Performance approach	0.00	–0.35	1.00	0.00
Performance avoidance	0.03	0.45	1.00	0.04
Rehearsal	–0.11	–0.08	1.00	0.58
Critical thinking	0.03	0.23	1.00	0.05
Time/study management	–0.25	0.26	0.98	3.20
Effort regulation	–0.55	–1.00	0.89	15.40**
Elaboration	–0.05	0.17	1.00	0.14
Organisation	0.13	0.47	0.99	0.81

*$p < 0.05$; **$p < 0.01$.

Table 10: Classification analysis for choice of learning environments

		Predicted group membership			
		Traditional		*Non-traditional*	
Actual group membership	*n*	*n*	*%*	*n*	*%*
Original					
Traditional	95	89	93.7	6	6.3
Non-traditional	35	20	57.1	15	42.9
Cross-validated					
Traditional	95	83	87.4	12	12.6
Non-traditional	35	21	60.0	14	40.0

Note: Overall percentage of original grouped cases correctly classified = 80%; overall percentage of cross-validated grouped cases correctly classified = 74.6%.

learning environment preferences. Further examination of the group means for each environment choice indicated that those who selected traditional learning environments were more mastery oriented and inclined to invest more effort in the learning process; those who selected non-traditional learning environments reported greater efficacy in their ability to successfully complete an online course.

Discussion

This study examined motivational orientations and learning strategy usage among students who chose either the traditional learning environment or non-traditional learning environment. Findings indicated that those students who preferred traditional

learning environments showed significantly more of a mastery goal orientation and greater interest in expending effort in class than those students who preferred learning environments incorporating an online component. This pattern of findings is consistent with that already reported in the literature (Brown & Liedholm, 2002; Kanuka & Anderson, 1998). Participants' reasons for taking a traditional class stressed the level of engagement of the student, the various instructional strategies used to accommodate the learning styles of participants and the opportunity for spontaneous and live discussions. These aspects also are often cited as important features of a learning environment that fosters mastery goals (Ames, 1992; Blumenfeld, 1992; Patrick, Anderman, Ryan, Edelin & Midgley, 2001).

The results of the discriminant analysis further highlighted the importance of self-efficacy in course selection. Specifically, students who chose non-traditional courses were more inclined to perceive themselves as able to academically succeed in them. Studies have demonstrated that students' self-efficacy beliefs usually increase if they have a successful online experience. Given this result and the extensive literature showing the benefits of efficacious beliefs in the learning process (eg, Wang & Newlin, 2000), providing opportunities for prospective online students to increase how confident they feel to take non-traditional courses is warranted.

Analysis of reasons for selecting an online education suggests that the lifestyle of the learner figures prominently. Among students' reasons for taking an online course was its consistency with their current lifestyle and the personal control it allowed them. This finding is consistent with previous research showing that the demands of job, family and personal schedules are the primary reasons for students taking an online education class (eg, Bickle & Carroll, 2003). By comparison, the pattern of findings for selecting a hybrid or traditional suggested that preference for these environments reflected consideration of potential enhanced learning. For example, students' selection of a hybrid or traditional course was largely substantiated by perceptions of how these courses would enrich their learning. As reflected in the words of a participant '(it) brings together the benefits of the online environment with the social interactions and physical presence of the professor.'

The potency of these findings is clearly tempered by the relatively small sample given the number of predictor variables investigated in the study. In particular, the sample size for the non-traditional group was low. Similarly, only 20% of our sample had experienced a course with an online component. Potentially, a far larger sample than that used here would allow for greater analysis of preferences for non-traditional classes. We do note, however, that even among those who had taken non-traditional courses, a preference for traditional learning environments was largely reported. Another consideration is that students may have based their choice of learning environment on the perceived importance of the course to their academic training and professional development. In fact, a third of all participants indicated that the reason they would take an online course, irrespective of preferred choice of learning environment, was its necessity to their degree. Clearly, investigation of the salience of a course to one's training

and preferences for taking that course online or in a more traditional format should be undertaken.

Overall, this study has practical applications. At a time when numerous academic institutions are moving towards greater incorporation of online learning environments, remarkably few questions have been asked about how students' motivation and learning strategies might impact their achievement in these environments and their preferences for them. According to Palloff and Pratt (2003), online learning might not match students' preferred learning style. According to students in our study, learners want engaging learning environments that promote 'direct interaction with professor(s) and students', 'spontaneity', 'immediate feedback' and 'relationships with faculty and students'. Consideration of these criteria in light of students' motivation and learning strategies will likely inform the design of effective learning environment for all students, both online and offline.

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Appendix A

Participant ID: _____ (same as on survey)

Choice of Learning Environment Survey

Please answer the following questions as honestly and accurately as possible. Before doing so, please read the brief paragraph below defining the different types of learning environments that you may be asked about in the questions below.

- E-learning refers to learning that is facilitated and supported through the use of technology and includes forum such as blended or hybrid learning and online education.

- Online education refers to courses that are delivered entirely via the Internet.
- Hybrid or blended learning is a combination of the traditional face-to-face classroom instruction with online learning.

Please check only one.

1. Have you ever taken an online education class.
   Yes .....
   No .....
2. Have you ever taken a hybrid learning class
   Yes .....
   No .....
3. How familiar are you with what it entails to take a class online?
   Very familiar .....
   Familiar .....
   Not at all familiar .....
4. How familiar are you with what it entails to take a hybrid class?
   Very familiar .....
   Familiar .....
   Not at all familiar .....
5. Imagine that you need to take a course that is important for your degree. You have the option of choosing one of the following learning environments to take the course. Please check the environment you would choose.
   Traditional face-to-face learning environment ☐
   Hybrid (combination of traditional and online education) ☐
   Online education ☐
6. Briefly explain your choice above.
   _____
   _____
   _____
   _____
   _____
7. Regardless of your answer in question five (5), why might you take an (a):

(i) Online course? Briefly explain.
_____
_____

(ii) Hybrid course? Briefly explain.
_____
_____

(iii) Traditional course? Briefly explain.
_____
_____