Perceptions of MOOC Utility:

How Expectations Affect Perceived Outcomes of Massive Online Open Courses

by J. Bruce Tracey, Magdalena Petronella Swart, and Jamie Murphy

EXECUTIVE SUMMARY

Massive open online courses (MOOCs) offer a novel learning context in which participants have complete discretion regarding their engagement with the course content. Consequently, some of the participants' individual characteristics, notably, pre-course motivation, have a considerable effect on their perceptions of the value of the course. This study finds that two contingencies— intentions regarding earning a certificate and industry experience—seem to have a negative impact on the relationships of pre-course interest and motivation with post-course utility reactions. Using survey data gathered from 593 individuals who completed "Introduction to Global Hospitality Management," a MOOC offered by the Cornell University School of Hotel Administration, the results from a series of regression analyses demonstrated a small but statistically significant positive relationship between pre-course interest and motivation with post-course utility reactions. However, the results also found that industry experience or the desire for a certificate did, indeed, slightly diminish the participants' assessment of the course. The findings highlight the relative importance of individual differences for achieving desired training outcomes, and demonstrate the need for a contingency perspective that comprehensively accounts for the degree of choice individuals may have regarding engaging in the course.

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The number and type of massive open online courses (MOOCs) have grown dramatically since the first courses were popularized in 2011 by Stanford University and the Massachusetts Institute of Technology (MIT). Shah reported that, at the end of 2016, there were about 7,000 MOOCs available throughout the world, which were offered via several online platforms, including Coursera, EdX, Udacity, Udemy, Alison.com, Floofl.com, FutureLearn.org, and NovoEd.com.[1] In comparison, there had been fewer than 2,000 courses just two years prior to Shah's study. Shah also noted that about 58 million individuals signed up for at least one MOOC in 2016, which reflects an increase of about 23 million individuals from 2015.[2]

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[1] Shah, D. (2016). Monetization over massiveness: Breaking down MOOCs by the numbers in 2016. Retrieved from https://www.edsurge.com/news/2016-12-29-monetization-over-massiveness-breaking-down-moocs-by-the-numbers-in-2016 (viewed September 1, 2017). ; Holladay, P.J. (2017). Pedagogy for online tourism classes. In P. Benckendorff & A. Zehrer. (Eds.), *Handbook of Teaching and Learning in Tourism* (pp. 141–153). Massachusetts, USA: Edward Elgar Publishing Limited); and Murphy, J., Kalbaska, N., Cantoni, L, Horton-Tognazzini, L., Ryan, P. & Williams, A. (2017). Massive Open Online Courses (MOOCs) in hospitality and tourism. In P. Benckendorff & A. Zehrer (Edss), *Handbook of Teaching and Learning in Tourism* (pp. 154-172). Northampton, Massachusetts: Edward Elgar Publishing.

[2] Murphy *et al.*, 2017.

A similar appetite for hospitality-specific MOOCs has also emerged. Several institutions have developed courses that address a wide range of topics that are relevant for the industry, including Taylor University's introductory wines courses and the University of Central Florida's course on tourism analytics. The primary benefits of this learning platform are, first, that it offers open and free (or inexpensive) access to quality higher education courses that were previously limited to on-campus (or contract course) settings, and, second, that users are given significant discretion and choice regarding how they engage with the learning platform, in terms of timing or whether they continue the course at all. In addition, enrollment is not restricted by educational attainment or similar admission requirements.[3]

MOOCs also align with important learning and development gaps in work settings. Many firms are unable to meet even the most basic training needs of their employees.[4] Thus, the opportunity to utilize content that is available in the public domain is clearly appealing. While few companies have formally integrated MOOCs into their corporate learning systems, momentum appears to be building.[5] For example, a 2014 survey of 103 human resource management professionals by Radford and colleagues showed that only 7 percent had used MOOCs to help promote professional development among their employees.[6] However, 75 percent reported that they have considered or could see their companies using MOOCs for developmental purposes in the near future. For example, MIT offers certificate-based "Digital Plus" programs which are open to companies that pay for custom solutions to address specific training needs.[7]

Moreover, MOOCs address two growing educational trends that have been acknowledged by employers, academe, and learners alike—the importance of addressing different learning styles and the trend toward lifelong education.[8] Since MOOCs generally incorporate a myriad of design and content features, they can accommodate a wide range of learning styles. Moreover, because they are founded on the open-access ideal, MOOCs promote continuous learning opportunities for anyone with online capability and resources.

If HR and learning executives determine that MOOCs play an important role in supporting the training needs of their staff, then it is critical to identify the factors that may influence the impact of MOOC-based learning. Because MOOCs generally are discretionary and voluntary, they stand in contrast to typical organization-sponsored programs, where individuals may feel obligated to complete optional courses or programs (e.g., to avoid criticism or curry favor with a supervisor) or participate because they expect to receive some sort of tangible outcome or benefit (e.g., improved knowledge and performance that lead directly to a job promotion). As such, MOOCs involve a substantial degree of self-directed learning. Consequently, the relevance of factors that may influence the utility of these types of learning platform may be distinctive, even if there are tangible outcomes or rewards associated with program participation and completion.

With that realization, the purpose of this paper is to examine the impact of two individual characteristics on the course-takers' assessment of the value or utility of the course. Those two characteristics, pre-course interest and pre-course motivation, have been shown to be relevant in more-traditional learning contexts,[9] but may have differential relevance for MOOCs. In addition, we will consider two important contingencies or moderators that may influence the relationship of pre-course interest and motivation with the assessed utility, namely, intentions regarding earning a

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[3] *Ibid*.

[4] For example, see: Tessler, B.L., Bangser, M., Pennington, A., Schaberg, K., & Dalporto, H. (2014). *Meeting the Needs of Workers and Employers: Implementation of a Sector-Focused Career Advancement Model for Low-Skilled Adults*. New York: MDRC.

[5] Johnson, S. (2017). MIT Moves Beyond the MOOC to Court Companies, Professional Learners. October 13. EdSurge. Retrieved from https://www.edsurge.com/news/2017-10-13-mit-moves-beyond-the-mooc-to-court-companies-professional-learners?utm_content=buffer27848&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer. (viewed 24 October 2017); and Walsh, L. (2015). Bringing MOOCs Back to Life. *Chief Learning Officer*, *14*, 26–47.

[6] Radford, A.W., Robles, J., Cataylo, S., Horn, L., Thornton, J., & Whitfield, K.E. (2014). The Employer Potential of MOOCs: A Mixed-methods Study of Human Resource Professionals' Thinking on MOOCs. *The International Review of Research in Open and Distance Learning*, 15(5).

[7] Johnson, 2017.

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[8] Cuffy, V., Tribe, J., & Airey, D. (2012). Lifelong Learning for Tourism. *Annals of Tourism Research*, *39*, 1402–1424 ; Radford et al., 2014; Rodríguez-Antón, J.M., Alonso-Almeida, MdM., Andrada, L.R, & Pedroche, M.C. (2013). Are University Tourism Programmes Preparing the Professionals the Tourist Industry Needs? A Longitudinal Study. *Journal of Hospitality, Leisure, Sport & Tourism Education*, *12*, 25–35; Sizoo, S.L., Agrusa, J.F., & Iskat, W. (2005). Measuring and developing the learning strategies of adult career and vocational education students. *Education*, *125*, 527.

[9] See, for example: Tracey, J.B., Hinkin, T.R., Tannenbaum, S.I., & Mathieu, J.E. (2001). The influence of individual characteristics and the work environment on varying levels of training outcomes. *Human Resources Development Quarterly, 12*, 5–24.

certificate (i.e., formal or extrinsic versus informal or intrinsic) and industry experience (also referred to as previous or current working experiences). We begin by presenting an overview of MOOCs and how they have evolved to date. We then discuss the previous research that has examined the links between individual characteristics and training outcomes (such as tangible rewards, expected course outcomes, or earning a certificate), including research specific to online learning programs. Next, we will present the results from an empirical study that examines the relationships among pre-course interest, pre-course motivation, and post-course utility reactions—a key outcome for any learning or training experience. We also present the results from analyses that consider the moderating effects associated with whether the participant has industry experience or expects a certificate in connection with the course. Finally, we will conclude with a discussion of our findings and the implications for future MOOC research and programming.

Overview of MOOCs

As the name implies, massive open online courses are openly available courses that have no or low fees, no prerequisites or required activities, and provide participant feedback, recognition, and capacity for any number of learners.[10] As noted above, the educational content of MOOCs varies widely, along with course design, which may include videos, readings, group work, homework, peer evaluation, self-evaluation, wikis, written assignments, tests, and online discussion forums. Courses are generally offered over a four- to eight-week period, and participants engage with the material and course assets at their own pace. Two basic types of MOOCs have evolved. The first type, connectivist MOOCs (also known as cMOOCs), are based on the idea that knowledge is created and shared across a network of connections, and that learning is the formation of connections made within the network.[11] In contrast, the other type, extended MOOCs (also known as xMOOCs), use traditional cognitive-behaviorist learning models.[12] Generally,

xMOOCs use short videos or text to present primary course concepts, followed by a series of activities and resources that reinforce the content. Assessments are then available to determine whether the course concepts are understood, at least on a declarative level.[13]

Although MOOCs have only recently emerged for online learning and education, this platform has substantial potential to augment company-sponsored training and development activities. A recent *Training* magazine article reported that a great deal of MOOC content is readily available and can be integrated quite easily into existing training efforts,[14] and there is evidence that firms are taking advantage of these new resources.[15] For example, companies can direct new employees to complete MOOCs as part of their training or integrate MOOCs into development programs that are designed to prepare individuals to take on greater responsibilities. Moreover, MOOCs can serve the learning needs of audiences worldwide. Thus, MOOCs not only serve as a key complement to existing training and development efforts, but this type of platform also "gives training a longer retention period and…allows organizations to expand their bandwidth."[16]

In addition to providing firms with global distribution of learning content, MOOCs offer an important complement to instructor-led approaches by promoting a highly flexible approach to learning. As noted above, the materials or assets embedded within many MOOCs provide a wide array of learning options, which may be introduced in a sequential fashion or all at once, depending the course learning objectives. While there is some evidence which shows that some types of learning styles may be more effective than others for online learning,[17] the various learning options that are incorporated in typical MOOCs are likely adequate to meet the needs of most learners.

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[10] Murphy *et al.*, 2015.

[11] Downes, S. (2011, 25 May). 'Connectivism' and Connective Knowledge, *Huffington Post*. Retrieved from http://www.huffingtonpost.com/stephen-downes/connectivism-and-connecti_b_804653.html. (viewed 24 October 2017).

[12] Daniel, J. (2012). Making Sense of MOOCs: Musings in a Maze of Myth, Paradox and Possibility. *Journal of Interactive Media in Education, 3*, part. 18, DOI: http://doi.org/10.5334/2012-18; Klobas, J.E., Mackintosh, B., & Murphy, J. (2014). The Anatomy of MOOCs. In P. Kim (Ed.), *Massive Open Online Courses: The MOOC Revolution* (pp. 1-22). New York: Routledge.

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[13] For comparison, see: Kraiger, K., Ford, J. K., & Salas, E. (1993). Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal of Applied Psychology, 78*, 311–328.

[14] Weinstein, M. (2014). Managing MOOCs. *Training*, 51, 26–28.

[15] Borras-Gene, Q., Martinez-Nuňez, M., & Fidalgo-Blanco, Á. (2016). New challenges for the motivation and learning in engineering education using gamification in MOOC. *International Journal of Engineering Education*, 32, 501-512 .

[16] Weinstein, p. 26.

[17] For example, see: Rogers, P.R. (2011). Student online course performance: Does learning style matter? *Journal of the Academy of Business Education*, 12, 28–42.

Importance of Individual Characteristics

In applied work settings, considerable attention has been given to individual characteristics that may influence the most immediate outcomes of any training program, whether formal or informal—course reactions (e.g., perceptions about the utility of a training program) and learning (e.g., acquisition of program-specific knowledge and skills). One variable that has been shown to be one of the most robust predictors of training reactions and learning is pre-training motivation (or pre-course motivation).[18] As such, a great deal of research has examined factors that may influence pre-training motivation. For example, a meta-analysis by Colquitt, LePine, and Noe showed that an individual's personality, general mental ability, and related factors (e.g., self-efficacy, anxiety) were consistent predictors of motivation for training.[19] In addition, there is evidence that several contextual and work-related factors may influence an individual's willingness to put forth effort during training. Tracey *et al*. showed that perceptions about the organization's training climate (e.g., accountability and incentives for using newly acquired knowledge) were significantly related to pre-training self-efficacy and motivation, which in turn were significant predictors of training reactions and two measures of learning.[20] Finally, studies have examined interactions between individual and situational factors that may influence pre-training motivation. For example, Stizmann, Bell, Kraiger, and Kanar found that efforts to promote self-regulation while learning a complex task resulted in higher learning outcomes, but only for those with high task-specific self-efficacy.[21] This finding suggests that when learning complex knowledge and skills, prompts and feedback may be helpful for individuals with high self-efficacy, but may hinder those with low self-efficacy.

While we know a lot about the factors that may influence pre-course motivation for conventional courses, it is not evident whether motivation and related factors have the same relevance for programs that involve substantial self-direction, including those that may be delivered using an online or technology-enabled format. For example, Simmering, Posey, and Piccoli found that perceptions about computer self-efficacy were negatively related to motivation to learn, and that motivation to learn was not significantly related to learning.[22] These results stand in stark contrast to numerous studies that have demonstrated positive links among these variables.[23] One possible explanation for the non-significant findings was the nature of the learning context in Simmering *et al*.'s study. In that case, the course was required, and many of the students already possessed a high level of computer proficiency. Thus, they may have learned the course material, even though their motivation for learning was low.

The findings from Simmering *et al*., as well as others, suggest that roles and relevance of pre-training motivation may be more complex than previously considered.[24] For example, training motivation may be especially important in situations where learners have little or no choice in participating[25] or, as noted above, when the objectives of training are complex.[26] In contrast, motivation to learn may be less relevant when individuals have a high degree of choice to participate in training, or when the content of the training or course is basic and does not require significant learning capabilities. In situations like these, factors such as general interest in the subject matter (that is, pre-course interest) may have more impact on learning outcomes than one's willingness to put forth effort.

MOOC Contingencies

As noted above, MOOCs reflect a distinct type of learning context. Unlike company-sponsored programs in which there are explicit or implicit tangible outcomes or rewards associated with program completion (e.g., performance enhancements that lead to better job assignments and advancement opportuni-

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[18] For comparison, see: Aguinis, H., & Kraiger, K. (2009). Benefits of training and development for individuals, teams, organizations, and society. *Annual Review of Psychology*, 60, 451–474.

[19] Colquitt, J.A., LePine, J.A., & Noe, R.A. (2000). Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research. *Journal of Applied Psychology*, 85, 678–707.

[20] Including declarative knowledge and application-based knowledge. See: Tracey *et al*., 2001.

[21] Stizmann, T., Bell, B.S., Kraiger, K., & Kanar, A.M. (2009). A multilevel analysis of the effect of prompting self-regulation in technology-delivered instruction. *Personnel Psychology*, 62, 697–734.

[22] Simmering, M.J., Posey, C., & Piccoli, G. (2009). Computer self-efficacy and motivation to learn in a self-directed online course. *Decision Sciences Journal of Innovative Education*, 7, 99–121.

[23] Compare to: Aguinis and Kraiger, 2009.

[24] Simmering *et al*., 2009. Also see, for example: Stizmann *et al*., 2009; Towler, A.J., & Dipboye, R.L. (2001). Effects of trainer expressiveness, organization, and trainee goal orientation on training outcomes. *Journal of Applied Psychology*, 86, 664-673; or Warr, P,. & Bunce, D. (1995). Trainee characteristics and the outcomes of open learning. *Personnel Psychology*, 48, 347-375.

[25] See, for example: Baldwin, T.T., Magjuka, R.J., & Loher, B.T. (1991). The perils of participation: Effects of choice on trainee motivation and learning. *Personnel Psychology*, 44, 51-66.

[26] For example, see: Stizmann *et al*., 2009.

ties), MOOC participants have complete discretion to enroll and engage in the learning process. Studies have shown that learner control has a significant influence on training satisfaction and learning,[27] including online programs.[28] In addition, there is evidence that many individuals engage in MOOCs based on personal interests and, as such, focus their efforts on one or a narrow set of topics within a particular course but do not engage with the entire course content.[29] Thus, while training motivation and general interest in a course's subject matter may have some impact on training effectiveness, factors such as learner control may be much more relevant.

Moreover, training motivation may have negative consequences in some MOOC settings. Many MOOCs include guidelines and instructions that participants can use to direct their learning and course-engagement efforts. In addition, as noted above, most MOOCs include the option to receive some type of recognition or certificate for completing the course, but offer no formal credit from the host institution.[30] These assets may be useful in learning settings in which participants need or desire structure, or benefit in some way from formal recognition. However, directing MOOC learners to complete a course in a particular manner in order to receive a certificate of completion may detract from the learning process because doing so imposes limits to the learning experience. This contention is based on research that has shown that error management training programs with low (versus high) structure led to significant skill acquisition, particularly when such programs are accompanied by instructional guidelines and when trainees possess high ability.[31] So while MOOC participants may complete all of the course assets in the specified manner and earn a certificate of completion, training interest and motivation may be negatively affected because participants become frustrated with the course completion requirements.

Similarly, an individual's familiarity with the course content or industry experience may have nega-

tive consequences in a MOOC setting. Even a basic understanding about a particular topic may elevate expectations about learning opportunities that accompany a course addressing that topic or a related one. This contention is supported by Simmering *et al*. and Burke and Moore, who found that learners who have previous or current work experiences which are similar to training program content may perceive that they will not learn much due to an "I knew that already" perspective.[32] These perceptions may in turn reduce one's motivation to engage with the course materials. Conversely, those with no previous work experience related to the MOOC content may have fewer preconceived expectations about the course content, and thus, may be more likely to engage in the course assets.

Summary and Propositions

Based on the research discussed above, we expect that pre-course interest and motivation will be positively (albeit modestly) related to post-course perceptions about program utility, and that post-course perceptions about program utility will be positively related to self-reported learning. In addition, we expect that completing course requirements to earn a certificate will negatively moderate the relationships of pre-course interest and pre-course motivation with post-course perceptions about program utility. Similarly, we propose that industry experience (i.e., previous or current work experience that is consistent with the program content) will negatively moderate the relationships of pre-course interest and pre-course motivation with post-course perceptions about program utility. Exhibit 1, on the next page, depicts a model of the proposed relationships.

Methods: Sample

The data for this study were gathered from a sample of individuals who participated in the Introduction to Global Hospitality Management MOOC (edx.com), which was offered by the Cornell School of Hotel Administration via Cornell Online during March 2016. Approximately 10,000 individuals from about 180 countries enrolled in the course. Approximately 27 percent of the participants were from the United States, followed by India (5.6%), Brazil (5.1%), and the United Kingdom (3.6%). About 48 percent of the participants were female, and an estimated 65 percent reported having earned a bachelor's or master's degree.

[27] For example, see: Baldwin *et al.*, 1991.

[28] For example, see: Orvis, K.A. Fisher, S.L., & Wasserman, M.E. (2009). Power to the people: Using learner control to improve trainee reaction and learning in web-based instructional environments. Journal of Applied Psychology, 94, 960–971.
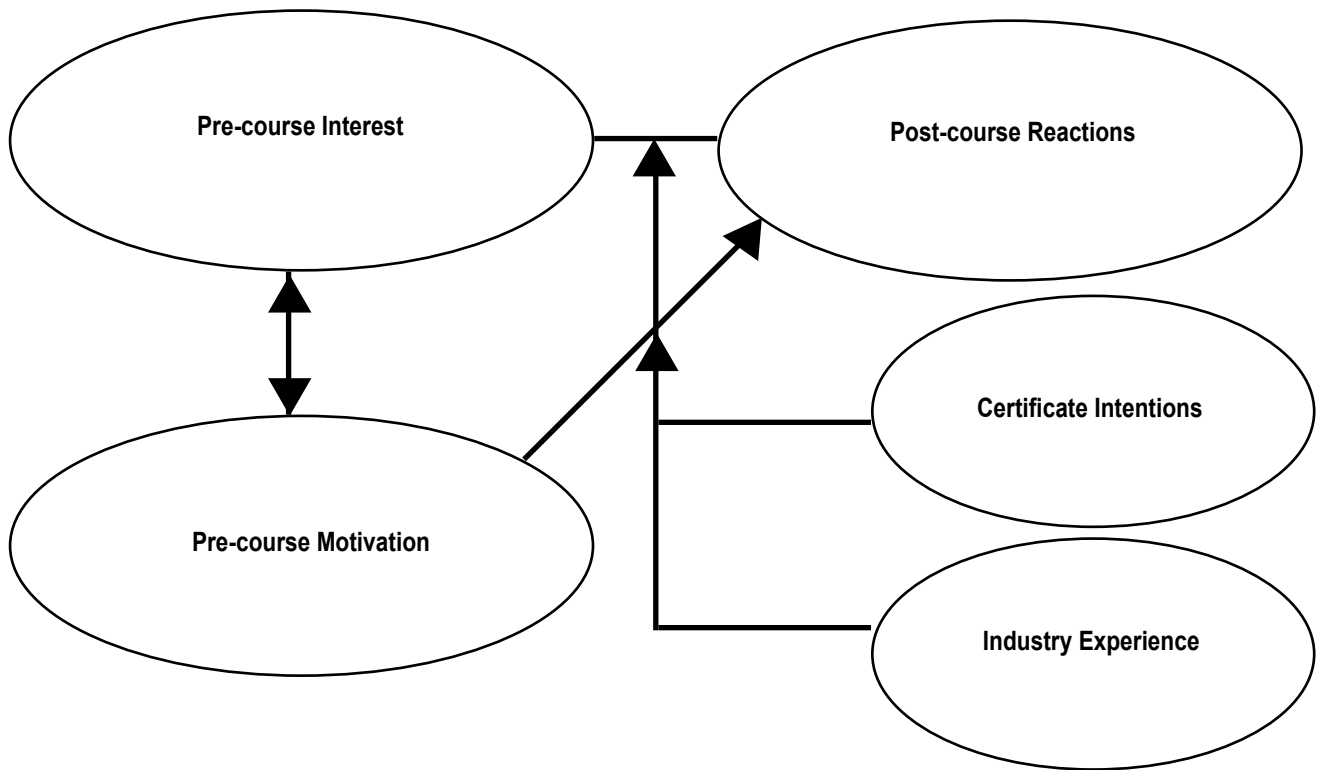
[29] For example, see: Borras-Gene *et al.*, 2016.

[30] Murphy *et al.*, 2017.

[31] For example, see: Heimbeck, D., Frese, M., Sonnetag, S., & Keith, N. (2003). Integrating errors into the training process: The function of error management instruction and the role of goal orientation. *Personnel Psychology*, 56, 333–361.

[32] Simmering *et al.*, 2009; and Burke, L.A., & Moore, J.E. (2003). A perennial dilemma in OB education: Engaging the traditional student. *Academy of Management Learning and Education*, 2, 37–52.

EXHIBIT 1

Proposed model

The Hospitality Management MOOC

This particular MOOC included six modules that included a mix of typical assets, including video, discussion boards, assessments, tools, and resources. The first module provided an overview of the program content, including suggestions for interacting with the materials and completing the course requirements. The next four modules addressed topics that were designed to promote the hospitality industry and provide a broad overview of the key functions and activities that are required for success. The strategic hospitality management and innovation module focused on planning and managing change, which provided tools and information that can be used to assess competitive conditions and make business-level decisions. The owners, operators, and investors module addressed several structural and financial topics, from buy-lease options to franchise agreements. The marketing module addressed branding and the various ways in which companies can effectively understand, position, and promote a firm. The HR management module addressed labor-market and related competitive challenges that influence HR decision-making, and offered content and tools that can be used to attract, develop,

and retain employees. The final module provided a summary of the program content and promoted additional learning opportunities related to the course content.

Procedures

Included in this MOOC were pre- and post-course surveys. All participants were encouraged to participate in these surveys, regardless of their intent to complete all or only some of the course content. Participants were informed that each survey would take approximately three to five minutes to complete, that their responses would remain anonymous, and that only aggregate-level results would be presented if made publicly available. Pre-course survey data were obtained from 3,640 individuals, while 745 individuals responded to the post-course survey. After matching surveys across the two time periods, a total of 593 cases were available for further consideration and analysis. It should be noted that due to confidentiality concerns by the data provider, personal data (e.g., demographic information) were not available for those who submitted survey responses. Thus, it was not possible to determine whether there were any signifi-

EXHIBIT 2

Descriptive statistics and correlations

	Mean	Standard Deviation	PreCourse Interest	PreCourse Mot	PostCourse React	Intend to earn a certificate	Employment in Hospitality
PreCourse Interest	3.514	0.708	0.646				
PreCourse Mot	3.491	0.977	.542**	0.647			
PostCourse React	4.027	0.716	.101*	.092*	0.860		
Intend to earn	1.150	0.356	-0.066	-.116**	-.126**	N/A	
Employment	1.610	0.905	-.203**	-.166**	-0.044	.068*	N/A

Notes: ** Correlation is significant at the 0.01 level (1-tailed); * Correlation is significant at the 0.05 level (1-tailed); Values in the diagonal are internal consistency (Cronbach's alpha) estimates.

	Mean	Standard Deviation	PreCourse Interest	PreCourse Mot	PostCourse React	Intend to earn a certificate	Employment in Hospitality
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Notes: ** Correlation is significant at the 0.01 level (1-tailed); * Correlation is significant at the 0.05 level (1-tailed); Values in the diagonal are internal consistency (Cronbach's alpha) estimates.

cant differences between those who responded to the surveys and those who did not.

Measures

Pre-course interest was measured with three items that were developed for this study. Participants were asked to consider each of the items and the importance that item may have had in their decision to enroll in the course. A sample item was, "General interest, curiosity, or enjoyment." Pre-course motivation was measured on a four-point scale using three items adapted from Tracey *et al.*'s pre-training motivation scale.[33] A sample item was, "How much time do you expect to spend on the course each week?" Rating options ranged from 1 (0–2 hours) to 4 (6 or more hours). Post-course utility reactions were assessed using three utility-based items adapted from Mathieu, Tannenbaum, and Salas's scale.[34] Participants were asked to rate the extent to which the course content and materials met their expectations. A sample item was, "Real-world applica-

[33] Tracey *et al.*, 2001.

[34] Mathieu, J.E., Tannenbaum, S.I., & Salas, E. (1992). Influences of individual and situational characteristics on measures of training effectiveness. *Academy of Management*, 35(4), 828–847.

bility." Intention to earn a certificate was measured by a single yes or no item. Similarly, participants' experience in the hospitality industry was measured by a single yes or no item.

Analyses

Descriptive statistics were computed first to examine the responses and respective profiles using SPSS version 24.0. Then, a series of correlation and hierarchical regression analyses were conducted to examine the relationships among the variables, including the interaction effects that may be due to limiting learner options or choices (i.e., earning a certificate of completion) and industry experience that is consistent with the course content.

Results

Descriptive statistics, internal consistency estimates, and correlations among the variables are presented in Exhibit 2.

Consistent with our propositions, the relationships between the two pre-course variables—interest and motivation—and post-course utility reactions were statistically significant, but the magnitude of the values was rather small. The estimate was 0.080

EXHIBIT 3

Regression results

Variables		β Step 1	β Step 2a	β Step 2b	β Step 2c	β Step 2d
		, (SE), p	, (SE), p	, (SE), p	, (SE), p	, (SE), p
Pre-course Interest		0.056, (0.047), ns	0.118 (0.056), *	0.062, (0.049), ns	0.056, (0.047), ns	0.055, (0.048), ns
Pre-course Motivation		0.051, (0.034), ns	0.043, (0.034), ns	0.050, (0.034), ns	0.141, (0.044), *	0.057, (0.037), ns
Pre-course Interest X Certificate Intentions			-0.102, (0.027), *			
Pre-course Interest X Industry Experience				-0.023, (0.012), ns		
Pre-coures Motivation X Certificate Intentions					-0.132, (0.027), *	
Pre-course Motivation X Industry Experience						-0.015, (0.011), ns
	F =	2.506	4.179	1.764	3.505	1.708
* p < 0.05	R² =	0.008	0.008	0.008	0.008	0.008
	ΔR² =		0.007	0.000	0.009	0.000

	Mean	Standard Deviation	PreCourse Interest	PreCourse Mot	PostCourse React
PreCourse Interest	3.514	0.708	0.646		
PreCourse Mot	3.491	0.977	.542**	0.647	
PostCourse React	4.027	0.716	.101*	.092*	0.860
Intend to earn	1.150	0.356	-0.066	-.116**	-.126**
Employment	1.610	0.905	-.203**	-.166**	-0.044

Notes: ** Correlation is significant at the 0.01 level (1-tailed); * Correlation is significant at the 0.05 level (1-tailed); Values in the diagonal are internal consistency (Cronbach's alpha) estimates.

($p < .05$) for the link between pre-course interest and post-course utility reactions, and 0.078 ($p < .05$) for the link between pre-course motivation and post-course utility reactions.

The results from the hierarchical regression analyses are presented in Exhibit 3. The step-one results showed that neither pre-course interest nor pre-course motivation were significant predictors of post-course utility reactions. However, when the interaction term that was based on a multiplicative relationship between pre-course interest and intention to earn a certificate was entered, pre-course interest and the interaction term were significant predictors in the final equation (pre-course interest, 0.118, $p < 0.05$; certificate interaction term, -0.102, $p < 0.05$). Similarly, the interaction term that was based on a multiplicative relationship between pre-course motivation and intention to earn a certificate, as well as the pre-course motivation variable, had significant beta weights in the final equation (pre-course motivation, 0.141, $p < 0.05$; certificate interaction term, -0.132, $p < 0.05$). In contrast, neither of the interactions between the pre-course variables and prior or current employment in the hospitality industry were significant predictors of post-course utility reactions. Finally, we should also note that neither country of origin nor educational attainment were significantly related to any of the variables that we examined.

Discussion

These results provide some interesting insights about the relevance of pre-course motivation for online learning programs that involve high levels of self-direction. The considerable research that has established the importance of pre-course or pre-training motivation and related individual characteristics for achieving desired training outcomes may not apply with MOOCs.[35] Instead, the emergence of MOOCs has created a distinctive context such that the results from previous research may not be completely applicable. In comparison to more typical programs that include highly structured designs and offer tangible rewards for successful completion, MOOCs promote a flexible learning environment that provides significant choice and discretion to participants. Moreover, the incentives to complete the course material in self-directed settings are based on more intrinsically oriented outcomes. As such, and as demonstrated by our findings, the relevance of individual characteristics such as

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[35] Compare to: Aguinis and Kraiger, 2009.

pre-course motivation may not be as robust as previously thought.

Continency Considerations

Based on the significant negative interaction effects that were due to intention to earn a certificate, it appears that a contingency explanation is needed to explain the relevance of individual characteristics such as pre-course motivation for achieving desired training outcomes. For example, the use of tangible outcomes or rewards to enhance an individual's willingness to put forth effort and successfully complete a training program may be quite important when learners are motivated by extrinsic factors. However, when learners are motivated by more intrinsic factors and have significant discretion to engage in a learning activity, design features that limit or place constraints on learner choices may have negative consequences. An example of such a limitation might be that, to earn a certificate, participants must complete a program in a step-by-step fashion rather than an *ad hoc* manner. This contention is based on research that has demonstrated the positive effects of choice on pre-training attitudes, motivation, and learning outcomes.[36] As such, consideration should be given to the design features that may influence the way in which learners engage with self-directed learning programs, and ensure they are aligned with and reinforce the intrinsic factors that engage learners and facilitate a positive experience.

Similarly, although the effects were non-significant, this contingency idea may also apply to the content of a particular program and the extent to which it may be consistent with a learner's industry experiences. There is evidence that training motivation and learning outcomes may be positively influenced when individuals are able to work in jobs of their preference.[37] If the training content is novel, then pre-course motivation may be quite relevant to ensure that individuals are adequately prepared and put forth the effort that is required to achieve the desired learning outcomes. However, while introductory content about a given topic may be quite compelling to those who already possess a basic understanding of the subject matter, the course expectations of more experienced participants may be higher, compared to individu-

als who know little about the topic.[38] Thus, when the content of a program is consistent with a learner's industry experiences, beliefs about the relevance of the program's content (i.e., pre-course utility perceptions) and related perceptions may have more impact on post-course utility reactions than an individual's willingness to put forth effort and achieve desired outcomes (i.e., pre-training motivation). It should be noted, however, that this is only one of several plausible explanations for the non-significant findings.

In addition to the contingencies discussed above, our findings also suggest that other individual characteristics may have particular or differential impact on the outcomes associated with self-directed online programs. For example, studies have linked several personality dimensions to learning outcomes, including conscientiousness,[39] openness to experience,[40] and extraversion.[41] However, these characteristics may be more or less relevant for self-directed learning contexts, as compared to traditional learning situations. For example, conscientiousness may be quite important for completing programs that are structured, and that require learners to follow a defined learning process. In contrast, openness to experience may be much more influential for ensuring positive outcomes in self-directed programs. These examples reinforce the need to reconsider the roles and relevance of individual differences in different types of learning environments, and to integrate a contingency perspective into models of training effectiveness.

The results from our study also have some important practical implications for hospitality settings. Integrating MOOCs into a company's learning and development strategy can provide an easy and cost-effective means for enhancing a wide range of employee knowledge and skills. As noted above, there are a number of courses that have been developed for hospitality settings, and many of these can easily be integrated into a firm's training and development agenda. For example, new employees with little or no previous hospitality work experience may benefit

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[36] See, for example: Baldwin *et al.*, 1991.

[37] See, for example: Patrick, J., Smy, V., Tombs, M., & Shelton, K. (2012). Being in one's chosen job determines pre-training attitudes and training outcomes. *Journal of Occupational and Organizational Psychology*, 85, 245-256.

[38] Compare to: Simmering *et al.*, 2009; and Burke and Moore, 2003.

[39] For example, see: Kim, K., Oh, I.S., Chiaburu, D.S., & Brown, K.G. (2012). Does positive perception of oneself boost learning motivation and performance? *International Journal of Selection and Assessment*, 20, 257–271.

[40] For example, see: Gully, A., & Chen, G. (2010). Individual differences, attribute-treatment intentions, and training outcomes. In W.J.S Kozlowski & E Salas (Eds.). *Learning, Training, and Development in Organizations* (pp. 3–55). New York: Rutledge.

[41] For example, see: Orvis *et al.*, 2010.

from completing a MOOC that provides an overview of the hospitality industry. In addition, firms can utilize specific MOOC assets (versus an entire program) to address specific learning needs. For example, MOOC modules that focus on guest service recovery can be adopted as part of broader programs designed to enhance overall customer service.

MOOCs also have the potential to enhance interest and motivation to learn in general, particularly among those who place high intrinsic value on growth and development. In addition, if integrated effectively into a broader training and development strategy, MOOCs can have a direct impact on individual performance and stimulate continuous improvement efforts that go well beyond those realized by formal, company-specific programs.[42] Of course, if the completion of a MOOC is tied directly or even indirectly to tangible outcomes (e.g., opportunities to take on additional responsibility that may lead to consideration for a promotion), then care should be taken to ensure that participants are not only interested, but also motivated enough to ensure that the desired outcomes are realized.

Limitations and Conclusions

One of the most salient limitations of this study is the rather small size of the effects. A likely reason for this outcome is that almost all of the respondents who filled out the closing survey completed the MOOC. As such, the variance in pre-course interest and motivation may be quite truncated; it is likely that those who

completed the course were much more motivated than those who did not do so. Given that potential restriction in range, the findings reported here may be conservative. Similarly, it is difficult to generalize the results due to the restrictions in range, and also due to limitations in the data acquisition process. As noted above, the participants were assured that their survey responses would remain anonymous. Thus, while we were able to obtain some demographic information for all MOOC participants, this information was "scrubbed" from the survey data, making it impossible to determine the representativeness of the survey respondents. Last, the correlational design of the study prevents any firm inferences regarding causality.

The key implication of this study is that a contingency explanation is needed to explain the roles and relevance of individual characteristics such as pre-course motivation for self-directed learning programs. This study builds on prior research that has demonstrated the importance of choice in creating an effective learning experience,[43] and offers some insights into the boundary conditions that may determine the relevance of various individual characteristics for responding positively to learning experiences and achieving the stated learning objectives. We encourage future studies to consider additional contingencies that may affect the use and utility of self-directed learning programs and may extend our understanding of the factors that may influence the effectiveness of efforts to acquire new knowledge and skill. ■

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[42] Compare to: Aguinis and Kraiger, 2009.

[43] For example, see: Baldwin *et al.,* 1991; and Patrick *et al.,* 2012.