

Understanding the Decision to Enroll in Massive Open Online Courses

by

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

The prevalence of high-paying, stable jobs for low skilled workers has declined over the past few decades. As a result, individuals lacking marketable job skills may be less likely to succeed in the workplace. Given this circumstance, massive open online courses (MOOCs) could offer a viable means of developing in-demand job skills. However, MOOCs do not appear to attract the individuals who stand to benefit the most from enrolling in them. Therefore, the purpose of the current research is to understand the factors leading individuals to enroll in a MOOC. To date, research has focused primarily on participant demographics, with little attention given to the psychological process behind enrolling in a MOOC. Thus, we conducted an empirical study to determine the psychological process underlying an individual's decision to sign up for a MOOC. The results indicate that participants were more likely to sign up for a MOOC if they had the intention to do so. We found that the intention to sign up for a MOOC was impacted by competing demands, perceived skills gap, value perceptions, and expectancy perceptions. That is, participants were more likely to intend to sign up if they perceived a gap in their job skills, perceived value in taking a MOOC, and had high expectancy in their ability to successfully complete a MOOC. Additionally, there was a negative relationship between competing demands and expectancy. Overall, this research has both practical and theoretical implications, including informing interventions to encourage under-skilled workers to pursue career advancement via MOOCs.

Keywords: Competing Demands, Skills Gap, Value, Expectancy, Intention, Sign Up

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Introduction

Over the past several decades, a shift in the nature of the workplace has greatly reduced the prevalence of high-paying, stable jobs for low skilled individuals (Thompson & Dahling, 2019). As a result, individuals lacking relevant knowledge or skills required by the current job market may become unemployed or constrained to unstable, low salary positions (Friedman, 2013; Thompson & Dahling, 2019). To prevent these undesired employment outcomes, individuals must develop knowledge and skills to compete in the modern workplace. Although traditional educational pathways (e.g., community college, university) provide opportunities for individuals to develop knowledge and skills, there are many barriers to access, including financial costs and time commitments. To this end, massive open online courses (MOOCs) may offer a viable alternative means of developing in-demand job skills. Importantly, MOOCs are affordable (often free), self-paced courses that can be completed anywhere with an internet connection (Weinhardt & Sitzmann, 2019). Therefore, MOOCs appear to be an accessible way for individuals to gain knowledge and skills that improve employability.

However, Dillahunt and associates (2014) found that the majority of individuals who sign up for MOOCs already hold post secondary degrees and have encountered few financial barriers to accessing higher education. Therefore, it appears that MOOCs often fail to attract the individuals who could benefit most from enrolling in them (Dillahunt, Wang, & Teasley, 2014; Weinhardt & Sitzmann, 2019). Although MOOCs have the *potential* to help individuals improve their employment prospects, in many cases this potential is not fully realized. To this end, the purpose of the current study is to address this problem of unrealized potential by identifying psychological factors that contribute to the decision to enroll in a MOOC. We do so by drawing

on self-regulatory theories of work motivation (Carver & Scheier, 1998; Vancouver, Weinhardt, & Schmidt, 2010).

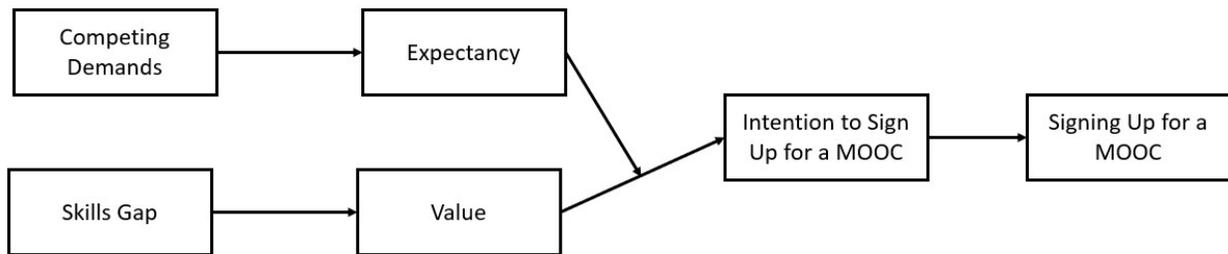
Specifically, we predict that the intention to sign up for a MOOC may be driven, in part, by perceived discrepancies between the skills an individual currently possesses and the skills required in the job market. In particular, the degree to which an individual perceives a gap in their job skills is expected to be positively related to the *value* that they attribute to completing a MOOC to develop those skills (e.g., Vancouver et al., 2010). Nonetheless, even if individuals perceive value in signing up for a MOOC, they may not sign up if doing so is ultimately perceived to be a lost cause. That is, the intention to sign up for a MOOC may depend on both the value attributed to the MOOC as well as an individual's perceived *expectancy* of successfully completing the MOOC. Thus, we argue that an individual will be most likely to sign up for a MOOC if both perceived value and expectancy are high as opposed to low. An important source of expectancy perceptions is likely to be the number of other responsibilities (e.g., childcare, work) competing for an individual's time and energy (e.g., Schmidt & Dolis 2009). Particularly, we argue that the number of competing demands will be negatively related to expectancy beliefs about completing a MOOC. These predictions are illustrated in Figure 1.

The current research makes several important contributions to the literature. First, despite MOOCs being an optimal way to develop the skills required by the current job market, little research has investigated the reasons for enrolling in a MOOC. Specifically, an individual's reasons for *not* signing up for a MOOC remain unclear. Therefore, this research is important for identifying the mechanism underlying the decision to sign up for a MOOC. Second, this research provides novel insights into the antecedents of the decision to sign up for a MOOC. To date, in depth research has not been conducted to understand what motivates an individual's decision to

sign up for a MOOC (Weinhardt & Sitzmann, 2019; Liyanagunawardena, Adams, & Williams, 2013). Thus, we address this gap in the literature by identifying the factors influencing an individual's decision to enroll in a MOOC. Finally, our research has practical implications for how to motivate individuals to sign up for a MOOC when *needed*. Specifically, we lay the groundwork for potential interventions that will encourage under-skilled workers to pursue career advancement via MOOCs.

Figure 1

Proposed Model



The Unrealized Potential of MOOCs

To compete in the job market individuals must possess in demand job skills. To this end, MOOCs are courses offered online that allow individuals to develop knowledge and skills in a wide variety of subject areas (Weinhardt & Sitzmann, 2019). MOOC providers offer an extensive array of courses through partnerships with world class universities and organizations (Liyanagunawardena et al., 2013). MOOCs were established with the primary goal to connect anyone in the world with an internet connection to high quality education for free or at a low cost (Weinhardt & Sitzmann, 2019). Therefore, MOOCs are one way to make higher education accessible to everyone. As such, individuals that need job skills to reach their employment goals can sign up for a MOOC (Bersin, 2016).

However, individuals who stand to benefit the most from completing a MOOC appear to be underrepresented in enrollment. Specifically, Dillahunt and colleagues (2014) conducted a survey study comparing a target group of individuals who would benefit from enrolling in a MOOC (i.e., could not afford formal education) to a comparison group who did not indicate financial need. These authors found that most participants were members of the comparison group who resided in a developed nation (i.e., the United States) and held at least a bachelor's degree (33.54%). Moreover, Christensen and colleagues (2013) surveyed MOOC participants and found that more than half are employed full-time or self-employed (62.4%) and hold a bachelor's degree (79.4%). Therefore, MOOCs are not reaching their full potential, as they appear to not attract those who would benefit most from signing up. For MOOCs to meet their intended goal to help low skilled individuals develop job skills, there is a need to understand what leads an individual to sign up for a MOOC. However, the psychological process underlying the decision to sign up for a MOOC remains unknown.

To date, research on signing up for a MOOC has primarily focused on participant characteristics. In particular, a systematic review of MOOC related literature demonstrated that recent research on MOOC participants has primarily focused on who signs up (i.e., participant demographics) and who completes MOOCs (i.e., attrition rates) (Liyana-gunawardena et al., 2013). Furthermore, limited research has determined some factors leading to signing up for a MOOC. For instance, qualitative studies have found that curiosity or fun and the need to increase workplace skills are reasons why people sign up for a MOOC (Christensen, Steinmetz, Alcorn, Bennett, Woods, & Emanuel, 2013; Milligan & Littlejohn, 2017). However, a gap remains in the literature regarding the psychological process underlying an individual's decision to sign up for a MOOC. Specifically, there is a call in the literature to examine the motivational processes

that underlie an individual's decision to enroll in a MOOC (Weinhardt & Sitzmann, 2019). To address this gap, we draw on self regulatory theories to identify the psychological process impacting an individual's decision to sign up for a MOOC.

The Psychological Process Underlying the Decision to Sign Up for a MOOC

The Relationship Between Skills Gap and Intention to Sign Up for a MOOC

Self-regulatory theories can provide a framework to better understand an individual's decision to sign up for a MOOC. In particular, these theories can be used to explain the processes by which individuals set and pursue goals (e.g., Carver & Scheier, 1998; Vancouver et al., 2010). A fundamental concept of these theories is the comparison of a goal or target an individual wants to achieve with what they have already accomplished. If this comparison detects a discrepancy between the goal and current accomplishments, a *goal performance discrepancy* is identified. The presence of a goal performance discrepancy reveals the need for a behavioural response. The behavioural response is perceived as necessary to reduce the discrepancy. Thus, an individual's *intention* to sign up for a MOOC may be driven by a goal performance discrepancy. Specifically, a discrepancy in job skills may impact the decision to enroll in a MOOC.

Due to the shift in the workplace, there is limited access to higher paying, stable job positions for low skilled individuals. As a result, individuals may have the goal to possess job skills needed to improve their employability. If the current job market requires certain skills, an individual may compare the job skills they possess to the job skills required. If they perceive that they do not possess the required job skills, they will perceive there is a *skills gap*. This perceived skills gap may motivate an individual to close this gap and reduce their goal performance discrepancy. To do so, an individual may try to acquire the skills that will allow them to achieve their employment goals. Thus, individuals may be more motivated to sign up for a MOOC, as

MOOCs provide an opportunity to develop the job skills they need. Based on this, we predict that there will be a positive relationship between a perceived skills gap and the intention to sign up for a MOOC.

Hypothesis 1: There will be a positive relationship between skills gap and intention to sign up for a MOOC.

Mediator of Skills Gap to Intention to Sign Up for a MOOC

Past researchers have theorized that the benefit or *value* of acting on a goal varies depending on the discrepancy between what an individual has currently accomplished, and the goal they hope to achieve (Vancouver et al., 2010). As such, the perceived value of signing up for a MOOC is expected to be a function of the discrepancy an individual perceives in their job skills. The size of the discrepancy from the proposed goal may predict the need to pursue that goal (Vancouver et al., 2010; Ballard, Vancouver, & Neal, 2018; Schmidt & DeShon, 2007). Specifically, an individual is expected to see more benefit in signing up for a MOOC as the gap in their job skills increases. This increased value perception is credited to an individual's ability to use MOOCs to develop in demand job skills and reduce their skills gap. Therefore, a perceived skills gap may inform the value attributed to signing up for a MOOC.

Moreover, the perceived value of signing up for a MOOC may in turn influence an individual's intentions to enroll in a MOOC. Sun and colleagues found (2014) that value can increase the likelihood that an individual will pursue a goal. Specifically, if the value of a proposed goal is high an individual will be more likely to pursue that goal (Ballard et al., 2018). Therefore, if an individual perceives that there is value in signing up for a MOOC, they may be more likely to form intentions to sign up for a MOOC. That is, the value of signing up for a MOOC is expected to positively impact an individual's intention to enroll in one. If we argue that a skills gap leads to value perceptions and value perceptions lead to intentions to sign up for

a MOOC, then it stands to reason that there is an indirect effect of value. As a result, we predict that value mediates the relationship between skills gap and intention to sign up for a MOOC.

Hypothesis 2: There will be a positive indirect effect of skills gap on intention to sign up for a MOOC via value.

Value x Expectancy Predicts Intention to Sign Up for a MOOC

Individuals are unlikely to pursue goals that are unattainable. As such, even if signing up to complete a MOOC is highly valued, an individual is unlikely to pursue this goal if it is perceived to be a lost cause. To make this decision, an individual will form *expectancy* perceptions about the likelihood of successfully achieving their goal of completing a MOOC. These expectancy perceptions help to inform an individual's decision whether or not to pursue a goal (Van Eerde & Thierry, 1996). In particular, people with reduced expectancy are unlikely to engage in goal directed behaviour.

Past research findings reveal that both expectancy perceptions and value perceptions are important when deciding to pursue a goal (Sun, Vancouver, & Weinhardt, 2014; Vancouver et al., 2010). Specifically, research has found that expectancy and value perceptions interact to positively predict an individual's decision to pursue a goal (Sun et al., 2014; Van Eerde & Thierry, 1996). As a result, an individual is expected to have the highest likelihood of signing up for a MOOC, if they hold both high value and expectancy perceptions. To break this down further, if an individual does not believe they can achieve the goal, they will be unlikely to pursue it regardless of the value attributed. Alternatively, even if an individual has high expectancy, they are unlikely to pursue a goal that is perceived to have little to no value. Thus, value and expectancy are expected to be predictors of an individual's intentions to pursue a goal. So, an individual may consider both the value of taking a MOOC and their likelihood of successfully completing a MOOC when forming the intention to sign up for a MOOC. Therefore,

we predict that an individual will have the highest intention to sign up if they highly value taking a MOOC and hold high expectancy perceptions that the MOOC can be successfully completed.

Hypothesis 3: There will be a positive relationship between value and intention to sign up for a MOOC. This relationship will be moderated by expectancy, such that the relationship will be stronger when expectancy is high as opposed to low.

The Relationship Between Competing Demands and Expectancy

Expectancy perceptions of successfully completing a MOOC are predicted to be driven by the number of responsibilities an individual has in their life. These responsibilities are *competing demands* that contend for an individual's time, energy, and other resources. For example, an individual may care for a sick relative or be responsible for childcare, in addition to their full-time job. As a result, an individual must decide which demands to pursue, as they only have finite resources to allocate across them (Beck, Schmidt, & Natali, 2019). Therefore, when deciding if they can successfully complete a MOOC an individual may also consider the additional responsibilities they have. When faced with multiple demands, resources are known to be allocated based on need (Schmidt & Dolis, 2009). Thus, an individual with competing demands that must be accomplished may be left with inadequate resources to allocate to successfully completing a MOOC. In turn, the individual is likely to have a reduced expectancy about their ability to successfully complete a MOOC (e.g., Schmidt & Dolis, 2009; Schmidt & DeShon, 2007). Specifically, if an individual has competing demands at both work and home, they are expected to have reduced expectancy beliefs in their likelihood of successfully completing a MOOC.

Hypothesis 4: There will be a negative relationship between competing demands and expectancy.

The Relationship Between Intention to Sign Up for a MOOC and Following Through to Sign Up for a MOOC

Ultimately, an individual who sees a need to complete a MOOC and believes they can successfully complete a MOOC is expected to form an intention to enroll in a MOOC. Once this intention is formed, an individual must decide whether or not to act on it. Research findings indicate that individuals who form intentions to pursue a goal are more likely to engage in a behaviour to achieve the goal (Ajzen, 1991; Armitage & Conner, 2010). Therefore, intentions are widely recognized as predictors of behaviour (Armitage & Conner, 2010). Accordingly, someone who intends to sign up for a MOOC is expected to be more likely to act on their intentions and sign up. Thus, we expect a positive relationship between the intention to sign up for a MOOC and the behaviour of signing up for a MOOC.

Hypothesis 5: There will be a positive relationship between intention to sign up for a MOOC and signing up for a MOOC.

Method

Participants

We recruited individuals from Amazon Mechanical Turk (MTurk). To be eligible for the study, participants needed to be U.S. residents over the age of 18 with a 95% approval rate on MTurk and 500+ HITS completed. At the beginning of the study, individuals completed three screening questions to filter out non-human (i.e., “bot”) responses. We invited 300 participants to complete a three-part study over the course of one week. Of the 300 participants invited, 194 completed all three waves of this study (retention rate = 61%). We excluded an additional 10 participants based on failed attention checks. The final sample consisted of 184 individuals who were primarily male (61%), Caucasian (72%) and had a mean age of 38 years (SD = 9 years).

Procedure

Surveys were administered at three time points over the course of a single work week. We separated measurements in time to minimize the potential for inflated relationships among observations due to common method variance (Podsakoff, MaKenzie, Lee, & Podsakoff., 2003). Wave 1 was administered on Monday. During this wave, participants responded to surveys measuring the predictor variables; specifically, competing demands and skills gap (i.e., current job skills). Participants also completed measures of individual differences¹. Finally, demographic information (age, race/ethnicity, gender, education level, employment experience, and previous experience completing a MOOC) was also collected during this measurement wave. Participants received \$1.00 USD for completing this portion of the study.

All participants who completed Wave 1 were invited to participate in Wave 2. This wave was administered on Wednesday (two days after Wave 1). At the onset of this portion of the

¹ Individual differences collected were General Self-Efficacy (Chen et al., 2001) and Goal Orientation (Vandewalle, 1997). These variables were collected for exploratory purposes

study, participants were provided information about Massive Open Online Courses. Specifically, we told participants that MOOCs are affordable, self-paced courses offered via the internet. We also indicated the potential benefits associated with completing a MOOC including developing and maintaining job relevant skills. Finally, we provided information about the typical format of a MOOC including how material is presented and the anticipated time required to complete a course. Next, participants responded to questionnaires measuring perceived expectancy of successfully completing a MOOC, the perceived value of completing a MOOC, and the intention to sign up for a MOOC. Upon completion of the questionnaires, participants were provided a list of current MOOC providers. Our goal was to increase awareness of the opportunity to sign up for a MOOC. By generating this awareness in Wave 2, we were then able to measure the participants' decision whether or not to enroll in a MOOC in Wave 3. Participants received \$0.50 USD for completing part 2 of the study.

Finally, Wave 3 was administered on Friday (two days after Wave 2). All participants who completed Waves 1 and 2 were invited to participate in Wave 3. During this wave, participants indicated whether or not they had signed up for a MOOC in the time between Wave 2 and Wave 3. We also administered several exploratory questions regarding the participants' reasoning for signing up or not signing up for a MOOC. Participants received \$0.50 USD for completing Wave 3. Additionally, participants received a \$2.00 USD bonus if they completed all three waves of the study.

Measures

Time 1

Competing Demands. Competing demands were measured by using Jones and colleagues' (2007) 14-item Role Overload Scale. Participants were asked to rate their agreement

on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Sample items included, “I have to do things I don't have the time for” and “I need more hours in the day to do the things expected of me”. Cronbach’s alpha was .96.

Skills Gap. We measured skills gap using the three item self-perceived need for skill improvement scale (Maurer, Weiss, & Barbeite, 2003). Participants were asked to rate their agreement on a 7-point Likert scale from 1 (disagree very strongly) to 7 (agree very strongly). Sample items included, “One or more of my career related skills or knowledge have been in need of improvement” and “I have seriously thought that my job abilities should be increased in certain areas.” Cronbach’s alpha was .92.

Time 2

Expectancy. Expectancy perceptions were measured by adapting Sanchez and colleagues’ (2000) three item scale to our specific context. Participants were asked to rate their agreement on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Sample items included “If I try to do my best, I can successfully complete a MOOC” and “If I concentrate and try hard, I can complete a MOOC.” Cronbach’s alpha was .88.

Value. We developed a 14-item perceptions of value scale for the specific context of this study. Participants were asked to rate their agreement regarding the degree to which completing a MOOC would provide additional value to their current work situation on a 6-point Likert scale from 1 (strongly disagree) to 6 (strongly agree). Sample items included, “I can see a lot of value in completing a MOOC” and “I can imagine tangible benefits from completing a MOOC.” Cronbach’s alpha was .86.

Intention to Sign Up for a MOOC. An individual’s intention to sign up for a MOOC was measured by adapting Cunningham & Kwon’s (2003) three item scale to our specific

context being the intention to sign up for a MOOC. Participants were asked to rate their agreement on a 7-point Likert scale from 1 (disagree very strongly) to 7 (agree very strongly). Sample items included, “I intend to sign up for a MOOC” and “Signing up for a MOOC is something I plan to do.” Cronbach’s alpha was .96.

Time 3

Behaviour of Signing Up for a MOOC. We assessed whether or not an individual followed through to sign up for a MOOC using the following question: “Did you sign up for a MOOC?” Participants responded “yes” (1) or “no” (0) to this question.

Analysis Plan

We tested our hypotheses using both multiple regression and logistic regression. We standardized all variables to have a mean of zero and a standard deviation of one (i.e., z-scores). To test Hypothesis 1, we regressed skills gap on the intention to sign up for a MOOC. To test for mediation in Hypothesis 2, we first regressed skills gap on value. Next, we regressed value on the intention to sign up for a MOOC while controlling for skills gap. The indirect effect was computed as the product of the regression coefficients of the first two steps. To test Hypothesis 3, we regressed the value X expectancy interaction on the intention to sign up for a MOOC. To test Hypothesis 4, we regressed competing demands on expectancy. Finally, to test Hypothesis 5, we regressed intention to sign up for a MOOC on the decision to sign up for a MOOC using logistic regression.

Results

Measurement Model

We conducted a confirmatory factor analysis to test our proposed measurement model. We tested to ensure we were capturing five unique constructs. We created parcels to account for the number of items (k) to people (N) ratio to achieve a ten to one (10:1) ratio. Specifically, we combined all odd items and all even items together to create the parcels of items within each construct. Next, we tested the fit of the model by examining the comparative fit index (CFI) and root mean square error of approximation (RMSEA). We found that our model had a CFI value of .94 and a RMSEA value of .09. Therefore, our proposed model provided acceptable fit to the data based on the conventional criteria of a CFI value $> .90$ and a RMSEA value $< .10$ (Kline, 2016).

Descriptive Statistics

Means, standard deviations, intercorrelations, and internal consistency reliabilities are shown in Table 1. Notably, skills gap was positively correlated with the intention to sign up and the behaviour of signing up for a MOOC, providing initial support for our hypothesis. As expected, the intention to sign up for a MOOC was positively correlated with the behaviour of signing up for a MOOC. Additionally, value was positively correlated with the intention to sign up for a MOOC. We provide more direct tests of our hypotheses below using regression analyses to account for moderators.

Table 1*Means, Standard Deviations, and Correlations*

Variables	Mean	SD	Correlations				
			1	2	3	4	5
1. Competing Demands	2.98	1.06					
2. Skills Gap	3.40	1.17	.35 ***				
3. Value	3.97	0.77	-.20 **	.05			
4. Expectancy	4.63	0.62	-.11	-.11	.40 ***		
5. Intention	4.72	1.70	.17 *	.28 **	.51 ***	.06	
6. Sign up	0.23	0.42	.18 *	.27 **	-.11	-.34 ***	.40 ***

Note. $N = 184$.* $p < .05$, ** $p < .01$, *** $p < .001$.**Hypothesis Testing*****Hypothesis 1***

In line with H1, there was a significant, positive relationship between skills gap and intention to sign up ($b = .28$, $SE = .07$, $p < .001$, $R^2 = .08$). Therefore, H1 was supported.

Hypothesis 2

H2 predicted that value would mediate the relationship between skills gap and the intention to sign up for a MOOC. To assess this hypothesis, we first regressed value on skills gap. Contrary to our hypothesis, there was no significant relationship between these constructs ($b = .05$, $SE = .07$, $p = .521$, $R^2 = .002$). Because the relationship between skills gap and value was not significant, value did not mediate the relationship between skills gap and the intention to sign up. Therefore, H2 was not supported. However, for the sake of completeness we assessed the relationship between value and intention to sign up for a MOOC. We controlled for skills gap to assess this relationship. We found that value was significantly related to the intention to sign up for a MOOC ($b = .50$, $SE = .06$, $p < .001$, $R^2 = .33$). Therefore, value appears to impact an individual's intention to sign up for a MOOC in an alternative way to our initial prediction in H2.

Hypothesis 3

H3 predicted that there would be a positive relationship between value and intention to sign up for a MOOC. This relationship is expected to be moderated by expectancy, such that the relationship will be stronger when expectancy is high as opposed to low. We controlled for skills gap and regressed the value x expectancy interaction on the intention to sign up for a MOOC.

The results are shown in Table 2. Expectancy moderated the relationship between value and the intention to sign up for a MOOC ($b = .16$, $SE = .06$, $p = .012$, $R^2 = .37$). This result indicates that the relationship between value and the intention to sign up was strongest when expectancy was high relative to low (see Figure 2). Therefore, H3 was supported.

Table 2

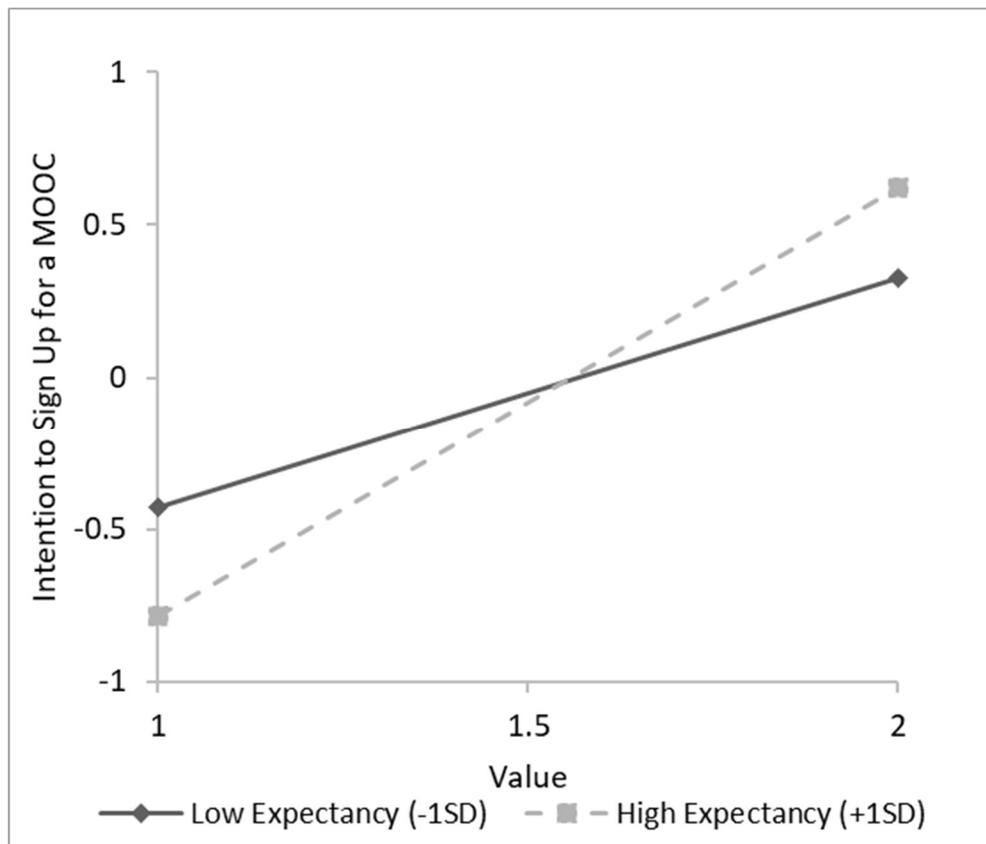
Hypothesis 3 Regression Results

Variable	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	R^2	<i>F</i>
Intercept	-.07	.06	-1.01	.316	.37	$F(4,179) = 25.87, p < .001$
Value	.54	.07	8.25	<.001		
Expectancy	-.02	.08	-.02	.841		
Skills Gap	.23	.06	3.85	<.001		
Val * Exp	.16	.06	2.53	.012		

Note. $N = 184$.

Figure 2

The Interaction Between Value and Expectancy Predicting the Intention to Sign Up for a MOOC



Note. Standardized variables (z-scores) plotted.

Hypothesis 4

In line with H4, competing demands were found to be negatively related to expectancy ($b = -.20, SE = .07, p = .007, R^2 = .04$). This result indicates that an increase in competing demands was associated with a reduced expectancy. Therefore, H4 was supported.

Hypothesis 5

Finally, H5 predicted a positive relationship between the intention to sign up for a MOOC and following through to sign up for a MOOC. First, we controlled for the preceding variables in the model (i.e., expectancy, value, competing demands, and skills gap) to meaningfully assess the relationship between intention to sign up for a MOOC and the behaviour

of signing up for a MOOC. We wanted to ensure that this relationship was not driven by the shared variance from the additional variables in the study. We found that intention to sign up was significantly positively related to the behaviour of signing up for a MOOC, Odds Ratio (*OR*) = 24.01, $b = 3.18$, $SE = .63$, Wald $\chi^2 (1, N = 184) = 25.15$, $p < .001$, 95% *CI* [6.93, 83.17] (see Table 3). That is, individuals were more likely to sign up for a MOOC if they had increased intention to sign up for a MOOC, relative to those who had low to no intention to do so (see Figure 3). Therefore, H5 was supported.

Table 3

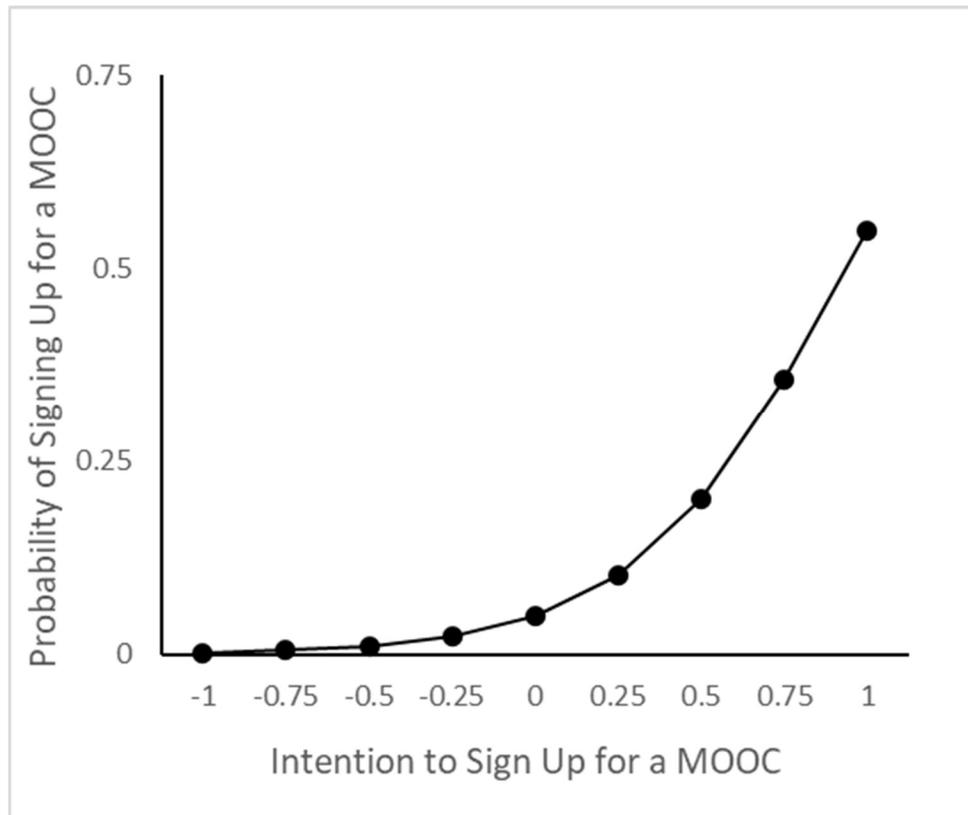
Hypothesis 5 Logistic Regression Results

Variables	<i>B</i>	<i>SE</i>	<i>Wald</i> χ^2	<i>df</i>	<i>p</i>
Intent	3.18	.63	25.15	1	<.001
Competing Demands	-.38	.29	1.71	1	.192
Skills Gap	.47	.30	2.46	1	.117
Value	-1.23	.46	7.24	1	.007
Expectancy	-.92	.34	7.51	1	.006
Val * Exp	.23	.28	.64	1	.424
Constant	-2.98	.56	28.21	1	<.001

Note. $N = 184$.

Figure 3

Logistic Regression Predicting the Likelihood of Signing Up for a MOOC Based on the Intention to Sign Up for a MOOC



Note. Standardized variables (z-scores) plotted.

Discussion

Summary of Results

The goal of the current study was to determine the psychological processes underlying an individual's decision to sign up for a MOOC. We tested a series of five hypotheses to examine how skills gap, competing demands, value, and expectancy impact the decision to sign up for a MOOC. With regard to a skills gap, individuals who detected a discrepancy in their job skills were more likely to intend to sign up for a MOOC. Yet, our results indicate that a perceived skills gap was not related to the value an individual placed on completing a MOOC. Therefore, a discrepancy in job skills does not appear to signal the value attributed to taking a MOOC. However, an individual's perceived value of completing a MOOC was associated with a greater intention to sign up for a MOOC. So, consistent with our theorizing, the perceived value of completing a MOOC led to a greater intention to sign up for a MOOC.

Furthermore, our results indicate that individuals are most likely to intend to sign up for a MOOC when they hold both high value and high expectancy perceptions, as evidenced by the value X expectancy interaction. Participants who perceived a MOOC to be valuable and believed they could successfully complete a MOOC were more likely to intend to sign up for a MOOC. Therefore, efforts should be made to increase both the perceived value of a MOOC and an individual's expectancy of successfully completing a MOOC. When considering expectancy perceptions, people had a reduced expectancy of successfully completing a MOOC when they identified greater competing demands. Thus, an individual's demands at both work and home might be addressed in an effort to increase expectancy perceptions.

Finally, as anticipated, individuals who have an increased intention to sign up for a MOOC are more likely to follow through with signing up compared to those with low to no

intention to do so. This finding suggests that efforts should be made to increase the likelihood that individuals will intend to sign up for a MOOC. Our results indicate that increasing an individual's awareness of a skills gap, the value they place on taking a MOOC, and their expectancy of successfully completing a MOOC may be ways to increase intentions to sign up for a MOOC.

Theoretical Implications

The current study addresses a gap in the literature by examining the psychological process underlying the decision to sign up for a MOOC. To date, research on signing up for a MOOC has primarily focused on the demographic characteristics of MOOC participants (e.g., Liyanagunawardena et al., 2013). Our research goes beyond participants' characteristics to determine psychological processes underlying an individual's decision to sign up for a MOOC. We drew on self-regulatory theories to provide a framework that informed the selection of factors that may impact an individuals' decision to sign up for a MOOC. By doing so, we had theory driven predictions and results that expanded the application of self-regulatory theories in a practical setting. Our results extend the literature by providing evidence of the psychological process underlying the decision to sign up for a MOOC. Understanding the psychological processes behind enrolling in a MOOC can provide insights to inform interventions that may address current under enrollment (further discussed in practical implications).

Additionally, our findings are in line with past theorizing that predicted expectancy and value will interact during goal setting (e.g., Vancouver et al., 2010). We garnered evidence of this interaction by applying the expectancy value framework within a practical setting. Specifically, our research went beyond lab experiments to observe the role expectancy and value perceptions have on the decision to sign up for a MOOC in a field setting. Thus, our findings

support prior theorizing that expectancy and value interact to positively predict goal setting, which in our case was the decision to sign up for a MOOC. Therefore, the assumption that expectancy and value interact during goal setting can now be asserted with greater confidence.

Finally, our results demonstrate that the decision to sign up for a MOOC is impacted by an individual's competing demands. As such, an individual's decision to sign up for a MOOC appears to be a multiple goal problem. More specifically, we found that competing demands reduced individuals' belief in their expectancy to successfully complete a MOOC, and therefore, competing demands can negatively impact the decision to sign up for a MOOC. As such, future research might draw on the multiple goal literature to further understand how competing demands impact enrolling in a MOOC. For example, previous work has examined how deadlines, goal progress, and goal difficulty impact an individual with multiple goals. Specifically, Schmidt & Dolis (2009) found that multiple difficult goals may exceed an individual's perceived capabilities resulting in their abandonment of one goal in order to obtain the other. Likewise, participants in our study may have been impacted by multiple difficult goals leading them to abandon signing up for a MOOC.

Practical Implications

The results of the current study may have important implications for both MOOC providers and individuals who complete MOOCs. With regards to providers, they are encouraged to consider the psychological processes underlying an individual's decision to enroll in a MOOC when recruiting for their online courses. In doing so, there are two potential ways in which the results of the current study could be applied. First, to encourage enrollment, providers can target expectancy beliefs. For example, creating advertisements for MOOCs to portray the courses as attainable and self paced may increase people's expectancy of successfully completing a MOOC.

Second, providers could draw attention to the gap within an individual's job skills to highlight the individual's need to complete a MOOC to reduce the skills gap. For instance, MOOC providers could create a job skills self-assessment that provides feedback about the skills required to reach an individual's desired employment situation.

Furthermore, prospective MOOC students may also benefit from the current research findings. If an individual perceives low expectancy of successfully completing a MOOC, they may wish to explore ways to increase their expectancy. For instance, those individuals could target the negative impact of competing demands at both work and home on expectancy perceptions by working on their goal prioritization and using available resources (e.g., child-care services). Finally, individuals can be encouraged to take inventory of the job skills they require relative to the job skills that they currently possess. As this study suggests when a skills gap is salient, individuals may feel a greater need to sign up for a MOOC.

The results of our study have implications for the skills problem experienced by individuals that are in low paying unstable positions or unemployed. Our research identified factors that influence the decision to enroll in a MOOC. These factors can be used to inform the interventions discussed above that encourage under-skilled workers to use MOOCs for career advancement. As such, signing up and completing a MOOC may be a solution for individuals impacted by the shift in the nature of the workplace. The previously low skilled individuals may now have access to higher-paying, stable jobs through skills acquisition via the completion of a MOOC.

Strengths and Limitations

The current research has two pertinent strengths. First, participants' sign-up behaviour was captured in a field setting. We conducted a field study gathering information from adults

online instead of an experimental study in a lab setting. This setting allowed us to capture participants from a wide range of backgrounds and provided them the opportunity to sign up for a MOOC. The current study is capturing the complex relationship amongst factors impacting the decision to sign up for a MOOC as they naturally occur.

A second strength of our research is that we chose to separate our measurement over time to control for common method variance. By using multiple surveys spaced across a week, we were able to reduce the inflating effects of common method variance on the relationships between constructs (Podsakoff et al., 2003). In turn, we have increased confidence that our results are not attributable to the measurement method.

Despite the aforementioned strengths, our study has two main limitations. The first limitation of the current research pertains to our participant demographics. In the current study, we recruited participants from a wide range of backgrounds using Amazon Mechanical Turk (MTurk). However, some of these participants may vary from our target group in a couple ways. First, MTurk workers may possess greater computer savviness than the general population. For instance, Master Workers exist on the MTurk platform that have demonstrated a high degree of success in performing the required work tasks (Amazon Mechanical Turk, n.d.). Therefore, MTurk workers may have an advantage when accessing and completing a MOOC based on these skills. Second, MTurk workers are known to be educated, with approximately half of the workers holding a college or advanced degree (Ross, Irani, Silberman, Zaldivar, & Tomlinson, 2010). Therefore, the characteristics of MTurk workers in our sample may result in generalizability issues for our findings. However, an educated individual is still susceptible to a job skills gap in the workplace. Additionally, MTurk workers are part of the “gig economy” (i.e., short-term, task-based labour), so we felt that it was an adequate participant pool for our initial study.

Nevertheless, future research could intentionally recruit low skilled participants to ensure generalizability of the findings. To do so, we suggest recruiting individuals from practical settings such as unemployment offices.

Another limitation of the current research is the correlational nature of the data. In our study we did not conduct an experiment or manipulate any variables. Consequently, we are unable to make causal inferences based on the data collected. A field study is not conducted in a controlled environment and therefore there is less control over extraneous variables such as situational variables. As a result, extraneous variables may bias the results. For instance, expectancy perceptions could emerge from a third variable such as a participant's experience of the COVID 19 pandemic. Future research could manipulate both expectancy and value to ensure that the relationships do not result from an external variable. Overall, we considered this study limitation to be reasonable, as we wanted to capture participants' behaviours in their natural setting.

Conclusion

A shift in the nature of the workplace has reduced the number of low skilled or unskilled job positions, creating a requirement for individuals to possess in demand job skills (Thompson & Dahling, 2019). MOOCs were established as a way for individuals to develop job skills that allow them to compete in the current job market. However, those who stand to benefit most from enrolling in a MOOC appear to be underrepresented in enrollment (Dillahunt et al., 2014; Weinhardt & Sitzmann, 2019). Therefore, it is important to understand the psychological process underlying an individual's decision to sign up for a MOOC. We found that individuals are most likely to sign up for a MOOC if they perceive a MOOC to have high value and they have high expectancy of successfully completing a MOOC, as well as perceiving a gap in their job skills. Moreover, an individual's perceived expectancy of successfully completing a MOOC increased when experiencing fewer as opposed to many competing demands. Overall, these findings go beyond the demographic characteristics of MOOC participants to identify the psychological process underlying an individual's decision to sign up for a MOOC.

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Appendix A

Role Overload Scale

Strongly Disagree

Strongly Agree

1

2

3

4

5

1. I have to do things I don't have the time for.
2. I have to do things I don't have the energy for.
3. There are too many demands on my time.
4. I need more hours in the day to do the things expected of me.
5. I can't ever seem to get caught up.
6. I don't ever seem to have time for myself.
7. There are times when I can't meet everyone's expectations.
8. Sometimes I feel that there are not enough hours in the day
9. Many times I have to cancel commitments.
10. I seem to have to overextend myself in order to be able to finish everything I have to do.
11. I seem to have more commitments to overcome than some of the other people I know.
12. I find myself having to prepare priority lists to get done all the things I have to.
13. I feel I have to do things hastily and maybe less carefully in order to get everything done.
14. I just can't find the energy to do all the things expected of me.
15. One or more of my career related skills or knowledge have been in need of improvement.

Appendix B

Self Perceived Need for Skill Improvement Scale

Disagree Very Strongly

Agree Very Strongly

1 2 3 4 5 6 7

1. One or more of my career related skills or knowledge have been in need of improvement.
2. I have seriously thought that my job abilities should be increased in certain areas.
3. I have been in real need of career related skill or knowledge improvement.

Appendix C

Expectancy Scale

Strongly Disagree

Strongly Agree

1

2

3

4

5

1. If I try to do my best, I can successfully complete a MOOC.
2. If I concentrate and try hard, I can complete a MOOC.
3. I can complete a MOOC if I put some effort into it.

Appendix D

Value Scale

Strongly Disagree

Strongly Agree

1

2

3

4

5

6

1. I can see a lot of value in completing a MOOC
2. Completing a MOOC will help my career
3. Completing a MOOC would be a waste of time
4. I can imagine tangible benefits from completing a MOOC
5. Completing a MOOC would make me a better employee
6. Completing a MOOC would make me more competitive on the job market
7. I don't see any point in completing a MOOC
8. Completing a MOOC would help me advance in my company

Appendix E

Intention to Sign Up for a MOOC Scale

Strongly Disagree

Strongly Agree

1 2 3 4 5 6 7

1. I intend to sign up for a MOOC
2. Signing up for a MOOC is something I plan to do
3. I will try to sign up for a MOOC