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Understanding Characteristics of High Performers in Two-sided Competitive Crowdsourcing

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Abstract—This study seeks to understand how professionals' (creative) Adaption-Innovation behaviors and prior knowledge influence successful participation in two-sided competitive crowdsourcing. Using Kirton's Adaption-Innovation theory, the study examines the influence of creatives' diversity, skills, experience, and activity level on crowdsourcing outcomes. Analysis of cross-sectional data of participants on a popular competitive crowdsourcing show that, while diversity and skills don't necessarily lead to higher performance, activity level and experience contribute to creatives' higher performance. Contribution to literature is by extending Kirton's Adaption-Innovation theory objectively as a lens to understand creative participation in crowdsourcing, highlighting key features of crowdsourcing as unbounded by place and skills.

Index Terms— Creative-background; Crowdsourcing; Intellectual Capacity; Adaption-Innovation.

I. INTRODUCTION

"...distributed labor networks are using the Internet to exploit the spare processing power of millions of human brains..." (Jeff Howe, 2006).

With the advances in information technology, access to external labor expertise beyond firm boundaries is now a key source of skills, time, effort and computing resources under a competitive or collaborative environment to accomplish a task. The act of taking a task such as developing innovate products that is new or usually performed locally within the firm to agents outside the firm through an open call to an undefined but large group of people is term Crowdsourcing [16]. Crowdsourcing has been suggest to be good for solving problems exhibiting characteristics such as unclear requirements, no need for specific knowledge, ease of evaluation and the presence of a motivated a crowd [1]. There are four different models of crowdsourcing activities: wisdom, creation, voting, and funding [10]. When the problem at hand requires opinions/ideas, then the form of crowdsourcing used is wisdom-based crowdsourcing while voting based crowdsourcing is used when the preferences of the crowd is needed. Sometimes the financial resources of the crowd are needed in exchange for a reward or not in what is termed crowdfunding. This study focuses on the second activity, creation, in which business tasks comprising mainly of design task are fulfilled through individual contribution of skill and creativity. The study focuses specifically on environment where solutions are requested through competition among the crowd through a third party referred to as the intermediary. The nature of the competition requires participants to be innovative to be successful. In Intermediary crowdsourcing model, the crowd (professionals/creatives) search through the list of posted tasks by a crowd seeker (customer), choose and compete in a tasks they have interest to win a fixed monetary rewards [23]. Customers by seeking the services of professionals have shifted the need for expert skills from closed forms within firms to open forms, where professionals (creative) and their stakeholders directly or indirectly exchange each other online.

The growing literature on crowdsourcing has raised the interest of firms in seeking external resources, ideas and skills using online means. Researchers have also examined various dynamics of crowdsourcing such as critical success factors and adoption issues. Some of the results of these investigations have highlighted the importance of active creatives' involvement for the success of crowd-sourced task [28, 30]. The recent IS literature on open-source software development or virtual organization a form of crowdsourcing increasingly suggest that one of the most critical enablers of user participation is the ability of creatives to be innovative through learning [5, 12]. This enables successful creative to perform well in the face of competition.

Generally, competition plays a major role in structuring the evolvement of communities. In the context of competitive intermediary crowdsourcing,

competition affects the sustainability of the crowdsourcing ecosystem. Competition among professionals could result in some professionals exiting the market and that side of the crowdsourcing market may collapse. The consequence of that will be a failure of the overall intermediary crowdsourcing market. However, the present literature on crowdsourcing especially intermediary crowdsourcing focuses less on the traits and the patterns of variation among participating professionals involved in crowdsourcing competition. This paper focuses on the relationships between individual professional traits (ability to innovate) and their success in crowdsourcing competition. Success in this context is that total number of crowd-sourced competition a professional wins by being innovative. This is done through the lens of deep-seated differences among professionals in styles of creativity, decision making, and problem solving using Kirton's Adaption-Innovation (KAI).

Adaption-Innovation Theory [18] proses that individuals have different predisposition to means of problem solving by placing them in a bipolar continuum of cognitive styles. The two bipolar ends are adaptors and innovators. Adaptors are individuals (creatives) who operate much like the rest of the crowd while innovators are creatives willing to invent even if it is against norms. A number of investigations [22, 24] have examined the relation between individuals' intellectual background and creative outcomes in the crowdsourcing contest or in other context. A creative could be an adaptor who like everyone submits bids strictly based on customer requirements or an innovator who adds unique dimensions to their designs and makes them standout in the competition in fulfilling the needs of the task. As stated earlier most of the task posted on crowdsourcing platforms are task with unclear requirements and will require some level of uniqueness in designs to be successful. With time adaptors might not do well and will exit the crowdsourcing market or become inactive.

Understanding how a creative's personal background or characteristics influence their participation in online contest such intermediary crowdsourcing contest is important to ensuring a continuous match between customer needs and creatives skills. This is particularly important given that in such marketplaces, customers from different backgrounds post tasks on these platforms with the hope that professionals on the other side of the market have the expertise to fulfill their request. Creatives will have to cognitively process the needs of the customer by researching their needs and preferences. The two-

sided nature of competitive intermediary crowdsourcing makes the cognitive style or background of the creative important to surviving in the market. However, creatives coming from different countries (e.g. USA, Russia, Indonesia, Philippines, India, and China) have different expertise and the need to compete for the customers' project means that while some will not win, others will win occasionally and others will win frequently. The differences in possibly of wins will affect the enthusiasm of professionals in the marketplace and causes the size of professionals' side of marketplace fluctuate over time. It is therefore important for crowdsourcing operators to encourage increased participation by promoting learning such that all participants irrespective of their winning history will be innovators and remain active in the marketplace. Howe [16] argues that a crowdsourcing platform that aspires to be successful and sustainable must pick the right model, offer the right incentives, keep things simple, attract the right crowd and keep employing people. Little pervious research has focused on the traits of the crowd.

The current study aims to fill this gap in the literature by delving into the black box of individual characteristics or cognitive styles in crowdsourcing marketplace. Specifically, the research questions addressed in this paper are:

1. What individual (creative) traits influence their successful participation in competitive intermediary crowdsourcing?

2. What is the effect of individual prior knowledge asset and diversity on these traits and on successful participation in competitive intermediary crowdsourcing?

Although cognitive styles are considered to be fairly stable and used to understand how individuals operate, many of these studies are based on perception of the individual about their cognitive styles [7, 25]. However, this study seeks to a take different approach by exploring objective measures of creative characteristics or traits. Using objective measures allows the study to avoid criterion changes as individuals respond differently. This study argues that creative's traits/cognitive preference influences their choice of task contest to participate which will result in different winning outcomes.

By simultaneously investigating individual traits and prior knowledge base, this work aims to provide a more holistic picture aim at explaining the different creatives' outcome observed in a competitive two-sided crowdsourcing market. The study contributes to the growing literature in IS on individual differences and crowdsourcing by empirically investigating the

antecedents of creative success using Adaption-Innovation Theory. This study extends [18] study to the IS domain by examining the constructs: experience level, activity level, diversity and skills set to the corresponding individual adaptive styles outcomes in crowdsourcing – success and studying them in the IT context. By explicating these factors, this study offers a novel understanding of what factors enable creatives' successful participation in competitive crowdsourcing and provide platform owners with insights on how to motivate and keep creatives active on their platforms.

The rest of the paper is organized as follows: section 2 reviews the relevant theoretical background literature toward the development of 4 hypotheses. In section 3, data and measures are introduced. Section 4 reports the empirical results and discusses the main findings. Limitations to the study are discussed in section 5 and the conclusion and implications are presented in section 6.

II. THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

A. Adaption-Innovation Theory

Our personality attributes influences our level of competitiveness. Competitive individuals typically persevere until they reach their desired goals. This level of competitiveness is manifest in the attempt to not to give up easily but innovate where possible to find the best solution. In a competitive crowdsourcing that attracts a lot of participants, being a star requires one to go beyond the ordinary to be successful. This is the thesis of this research. This study argues that the competitiveness of the individual is based on their intellectual/cognitive styles.

Individual's cognitive style describe the way they think, perceive and remember information that is important to the execution of an assign task. Cognitive styles have been found to influence individuals' positive learning experience and their participation in activity [19]. The adaptation-innovation theory has helped organizations to understand problem solving and cognitive style of their employees.

Prior research as established that individuals' cognitive style influences their creativity [3, 18, 33]. This study focuses on Kirton's Adaption-Innovation Theory. Adaption-Innovation Theory proses that individuals have different predisposition to means of problem solving by placing them in a bipolar continuum of cognitive styles. While adaptors go with flow like other individuals, those with innovative cognitive styles tend to invent means of getting things done. Individuals with an innovative style tend to be more creative than those with an adaptive style [24], which is a very important trait to succeeding in competitive crowdsourcing. The possibility of first mover advantage in competitive crowdsourcing will require an individual to study the platform and act beyond the ordinary to stand a chance of winning a competition. Ingenuity among different individuals will vary as they each possess particular traits or cognitive styles and that will results in different outcomes (contest won) by creative.

When participating in a contest to solve a problem, innovators will develop a large number of potential solutions, some of which may never get selected. Innovators do not get discourage by this as they believe that if you try one solution and it does not work, you can try another one until a successful one is found [9]. Innovators are competitive people do whatever it takes to fulfill their desires to win. This sets up innovators to be more successful in competitive crowdsourcing than adaptors as competitive people like innovators will strive to be better no matter the obstacles such consecutive losses.

However, prior literature on innovators-adaptors have all taken perception based approached using the KAI measuring instruments [2, 11, 31]. This will take a different approach by operationalizing the concepts of Kirton's adaptors-innovators theory objectively. The objective indicators in this study are activity level and experience used to indicate individual's traits or cognitive style toward problem solving. Adaption-Innovation Theory assumes that imaginative people solve problems. However, the factors and the way people solve problems may vary and the study shall in addition to experience and activity examine other factors such as diversity and skills set.

B. Experience

Innovators go beyond adaptors in any contest to understand their environment by learning how to be competitive. Learning in the social context as posited by is through observational process [6]. A creative in crowdsourcing learning is dependent on the individual's self-efficacy, self-regulation, and modeling. These factors at the individual level are different across individuals. A creative's self-efficacy is reflected in their choices, amount of effort and persistence. These dynamics change over time as the creative makes the most from the learning experiences by innovating ways to remain competitive in the marketplace. Participating in competitive crowdsourcing is characterized by losses, infrequent and frequent winning opportunities since the creatives' compete on quality which is a defined by the customer. It's usual for creatives to submit bids that

never get chosen. However, the intellectual (cognitive) ability of creatives gets enhanced through such experiences in the marketplace. But it's only the ones that can in addition to learning innovate that that stand a good chance of winning in subsequent competitions. This builds their self-efficacy and persistence of effort. Therefore, creatives who stay long in the marketplace experience increase knowledge of the type and interest of customers as the observe customers' choice of the best bid submissions and devise mechanism for meeting those needs. These differing levels of knowledge gained through experience on a platform will have a complex influence on how best creatives innovate and can submit competitive bids. This implies that the longer a creative stays on platform the greater will be their experience at submitting winnable bids.

Cognitive style norms of creatives vary from platform to platform. When a customer is seeking innovation from expert creatives, they look for the "super" individual. Becoming that super creative requires the creative to have knowledge and experience to be able to innovate to meet customer needs and be successful [29]. Therefore,

Hypothesis 1: The experience level of a creative is positively associated with level of success in a competitive crowdsourcing marketplace.

C. Activity level

In addition to self-regulation, modeling after others has been posited by [6] to influence individual differences. Modeling after others give a creative impetus to compete and win because the creative will know what innovation is needed on her part to win. Modelling works through such means as self-monitoring, judging performance and self-response. Watching others has been found to be an important mechanism through which a creative can get insight to innovate and stand out among the crowd. In the context of crowdsourcing, creatives who are directly or indirectly encouraged to participate in several projects provide themselves the opportunity to experience mastery or success in submitting successful bids by being able to innovate instead of just adapting to the status quo. Given that modelling will influence a creative's innovation tendency, the level of active involvement in crowdsourcing will need to the submission of more bids. This study expects that a creative participates in more projects because of their ability to innovate in submitting winning bids. To be able to innovate, creatives have to have cognitive style is different from the crowd and serve change agents on the platform [20]. This requires an active involvement of the creative in the market. An

active creative can pick up early information regarding which customer task needs and make improvement as the innovate to reduce customer wait time [27]. Hence;

Hypothesis 2: The activity level of a creative is positively associated with level of success in a competitive crowdsourcing marketplace.

D. Creative background (Diversity)

The third hypothesis looks at the environmental factor. The background of individual influences their learning behavior and their ability to innovate. This is because environment shapes and reinforces an individual's approach to learning in various ways [26]. Individuals' backgrounds as reflected in their diversity influences their capacity to contribute new knowledge (innovate) and to absorb new knowledge. In competitive crowdsourcing where customers come from varied backgrounds, their request may reflect this background. For instance, a request from a customer in the western culture will expect a proposal that has large symbols while an Asian customer will prefer a proposal with medium/small symbols or they may differ on other product features [8]. Therefore, a creative with a diversified background should be able to participate in a greater number of competitions and quickly learn the interest of customers so as to be able to submit a winning bid. Assuming that customers on the crowdsourcing marketplace are from diversified backgrounds, a creative with a wider perspective should be able to learner faster and innovate to submit winnable bids as they participate in the marketplace. For instance, a creative with a broader understanding of European, Asian or American culture is expected to able to understand the needs of buyers from these backgrounds and which leads to participation in diverse competitions and this will result in increased chance of submitting a winning bid. This is because creatives with diverse background might have the varied knowledge base to be innovate and able to participate in multiple projects. Accordingly,

Hypothesis 3: The diversity background of a creative is positively associated with level of success in a competitive crowdsourcing marketplace.

E. Intellectual Capacity (Skills)

An individual's learning ability is impacted by their existing knowledge scheme [15]. An individual is able to acquire more knowledge to innovate if the new information is meaningful thereby facilitating its merger into their existing cognitive structure. Thus, a creative participating in a crowdsourcing competition comes with an existing knowledge scheme reflected in their skills set. These skills get enhanced when there

exist opportunity to build on the existing knowledge to innovate to win a competition. The different categories of crowdsourcing such as web design, graphic design, industrial design and mobile design offer varying opportunities for creatives to enhance their knowledge. When a creative participates in a platform where they have fewer matching skills, they will have fewer opportunities to build on their existing knowledge schema to compete effectively. A creative with a wider array of skills get to be introduced to more opportunities for new information or skills that could help widen their cognitive structure and opportunities to submit better proposals. As creatives learn to integrate their new knowledge with their existing knowledge from participating in these projects, they are in a better position to be innovative and increase their chances of submitting a competitive bid increases. The intellectual capabilities of creatives' directly or indirectly plays an important role in their performance especially when there exist potential for economic gain [14] Thus, it is expected that:

Hypothesis 4: The skills set of a creative prior to joining the marketplace is positively associated with level of success in a competitive crowdsourcing marketplace.
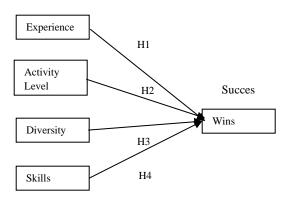

Figure 1. Research Model

Figure 1 summarizes these four hypotheses and illustrates the conceptual model framework for the empirical analysis along with predicted directions of the relationship between the dimensions of social learning and success (wins) in a competitive multi-sided crowdsourcing market. The Figure 1 also illustrates the important outcome of being innovative or an adaptor in competitive crowdsourcing success which manifests in the number of wins a creative accumulates over time.

III. METHODOLOGY

A. Empirical Model

The dependent variable for this study is success outcome of a creative participating in a competition in online crowdsourcing. Success of a creative in a crowdsourcing manifests in the actual winning of a contest. The study thus estimates a creative success by examining if the cumulative number of wins associated with a creative has any relationship with the independent variable stated above. Using the production function as our basis following prior studies in IS such as [5]; [17]; [4], we develop a log-linear regression model with continuous, binary and categorical variables:

$$\text{Ln(wins)} = \beta_0 + \beta_1 \text{ Ln(diversity activity level)} + \beta_2 \text{ Ln(skills)} + \beta_3 \text{ (experience)} + \beta_4 \text{ (activity level)} + \varepsilon \tag{1}$$

B. Data Collection

This study uses information of participants in a competitive crowdsourcing platform (crowdspring.com) to construct a data set to test the above hypotheses. The empirical analysis focuses on the participants who joined the platform from 2008 to 2015 with at least two months of experience on the platform. Crowdspring.com has been featured in the *New York Times, Forbes and The Wall Street Journal* for its activity with regard to customer enthusiasm to participate in crowdsourcing and thus providing an ideal research context for this study. This market requires a creative to compete against hundreds of other creatives to be selected a winner. This means a creative has very high odds of been selected a winner. By focusing on a single platform or marketplace, the study controls for numerous confounding factors related to marketplace characteristics such as tenure of marketplace and site usability. A software agent was used to collect data on all creatives in the marketplace. This cross sectional data was collected in October 2015. The sample size at the end of the collection period resulted in 2096 observations. The data from crowdspring.com contains creative login details which makes it possible to determine how long a creative has been on the platform. Therefore, tenure of creative on the platform is utilized to represent experience level variable in this study. The number of project competitions a creative participate in measures the activity level independent variable. Creative on crowdspring.com platform indicates their fluency with languages such as English, French, German and a lot more as the set up their account details. Language as a demographic information is used to represent diversity

as has been the case in [21] study of occupational achievement.

In this study, diversity is measured as a binary variable such that a diversified creative is multilingual and a less diversified is monolingual. The last independent variable skills, is measured as an ordinal variable. Crowdspring.com has four categories in which project competition takes place – web design, graphic design, mobile design and industrial design. Creative skills set are coded one through four by counting the number of skills sets creative declares at the time of joining the crowdsourcing marketplace. Therefore, a creative with a score of four has greater number of skills set than a creative with one at the time of joining the platform. Table 1 summarizes the variables in the study and their definition.

TABLE 1: VARIABLE DEFINITION

Variable	Definition
Success (dependent)	Cumulative number of projects won by a creative
Experience (Independent)	The length of time between the creative join date and last login date
Activity Level (Independent)	Cumulative number of projects a creative has participated in since joining the platform
Diversity (Independent)	Binary variable with 1 indicating a multi-lingual creative and 0 indicating monolingual creative
Skills (Independent)	The number of skills a creative poses at the time of joining the marketplace

C. Creative Identification

The identification of creatives suitable for the study was based on two factors: 1) experience level and 2) language familiarity. The first criterion ensures creatives have at least the opportunity to submit a bid and have gone through three rounds of customer winning selection. The average duration of a project is about two weeks and the winner of a project is usually determined in 7 days. Therefore, a window of 60 days allows enough time for a creative to go through at least 3 rounds of separate competitions. After this criterion our initial data set of 2096 reduced to 1409. The second criterion helps in the determination of the diversity of a creative. Some creative choose not to disclose their nationality and language familiarity making it difficult to determine one of the independent variables in the study. Based on the two criteria, our final data resulted in a sample of 720 observations. To ensure that this criterion did not bias the study results, a test of mean differences in wins for creatives who

indicated their background and those who did not indicated there were no differences. The criteria are summarized in table 2.

TABLE 2: CREATIVE SELECTION CRITERIA

Criteria	Comment	Resulting Creatives
Creatives on market place as 10/10/2015	Collected data on creative nationality, join date and history of activity	2096
Creatives with declared nationality and skills set	Nationality was important to establishing the diversity of creative and the skills set to help code the creative prior knowledge	1409
Creatives with at two month of activity	This duration was to allow enough time for a creative to know their performance in at least four projects	721

D. Data Analysis

Log-linear regression was used to analyze the data. SAS v9.4 software was used for data analysis. Before conducting the regression analysis, we checked the distribution of the variables and found that they met most of the OLS assumptions except for the normality of the residual of the dependent variable. However, an examination of the normality plots of the residual showed little violation of that assumption. Additionally, prior literature suggests that with a large data set, the violation of the normality assumptions does not hurt any inferences made on the model. Table 3 shows the distribution of wins and other descriptive statistics of the variables in this study. Multicollinearity was also examined by checking the variance inflation factors (VIFs) in the regression analysis. The results showed that the VIFs for all variables were below the threshold of 10, suggesting that multicollinearity was not a serious problem in our analysis. To ensure robust results, the regression was run again with White heteroskedasticity standard errors which are conservative to ensure good hypothesis testing. Tables 3 and 4 report the regression results for testing hypotheses and descriptive statistics with coefficient diagnostics.

TABLE 3: REGRESSION RESULTS

Dependent Variable: Wins	OLS Regression (ordinary)	OLS Regression (White heteroskedasticity)
Constant	-3.06** (0.277)	-3.06** (0.233)
Diversity	-0.04 (0.068)	-0.04 (0.066)
Skills	0.05 (0.037)	0.05 (0.036)
Experience	0.23** (0.044)	0.23** (0.039)
Activity Level	0.65** (0.030)	0.65** (0.029)
Adjusted R2	0.53**	0.53**
Fit Statistic	202.57**	202.57**

Note: Asymptotic standard errors are given below each parameter estimate (heteroscedasticity robust for OLS;). '*' denotes statistical significance at 5%; '**' denotes significance at 1%

TABLE 4: DESCRIPTIVE STATISTICS

Variable	Mean	S.D	Minimum	Maximum
Diversity	0.38	0.49	0	1
Skills	1.82	0.90	1	4
Experience	1353	759	63	2749
Activity-level	322	448	2	4988
Wins	15	26	1	408

TABLE I: CORRELATIONS

Variable	Diversity	Skills	Experience	Activity-level
Diversity	1			
Skills	0.08	1		
Experience	-0.01	-0.04	1	
Activity-level	-0.02	-0.09	0.51	1

IV. DISCUSSION

A. Effect of Creative Experience

The first hypotheses state that as a creative's tenure in the market place increases so will be their experience. Creative will have to compete to remain active in the market and depends on how innovative they are through learning. This will result in increased number of projects won. The experience level of each creative in the data was regressed on the number of projects the won. As can be seen in Table 3, the positive coefficient for experience indicates that the cumulative number of projects won by a creative increased as their length of stay in the marketplace increases due to their ability to innovate. This provides support for the first hypotheses of this study. In an open system such as crowdsourcing learning and been innovative takes place through self-regulated strategies. As argued earlier, a creative who stays long on a platform does so voluntarily and learns through self-imposed mechanisms to innovate to stand out in the crowd to be chosen as the winner. This is consistent with other innovative behaviors exhibited in other information such learning to use ERP systems which found to differ among individuals and is based on self-regulated training [13]. Deciding to stay in marketplace despite chances of failure in the early stage requires a lot of self-motivation and regulation which is evident in crowdsourcing marketplace.

B. Effect of Activity Level

Creative utilized every innovation opportunities to increase their efficiency and enhances their competitive advantage. It has been found in previous studies that interdependent and non-routine tasks provide impetus for learning to be innovative in technical fields [32]. In crowdsourcing, creatives chose the project to participate in and modelling that takes place is driven by innovation and self-learning. Based on table 3, the positive coefficient is significant at the 0.05 level indicating that as a creative activity level increases the cumulative number of wins decreases. It was argued earlier that this will results due to self-monitoring, judging performance and self-response through participation in several projects because the creative needs to be innovative to remain competitive. This argument is consistent with task-driven learning opportunity.

C. Effect of Creative Diversity Background

It was hypothesized that creatives with a diversified background will win more projects than less diversified creatives over time. To do this, creatives' language was used as proxy for diversity on crowdspring. The diversity of creative was code as a dummy variable. Following the analysis, it was found that creative's diversity background does not play any significant role in determining the success of a creative in crowdsourcing marketplace. This is contradiction to what was hypothesized. Thus, we fail to support H3.

D. Effect of Creative Prior Skills

It was hypothesized that creatives with a higher skillset will win more projects over time. The number of skills creative declares at the time of joining the marketplace was counted for each creative. The variable for this was code as an ordinal variable ranging from one to four. Following the analysis, it was found that a creative's initial skills do not play any significant role in determining the success of a creative in crowdsourcing marketplace. This does not provide support for H4 and challenges our initial hypotheses.

E. Summary of Results

This study conceptualizes the cognitive styles of creatives in crowdsourcing based Innovation-Adaption theory through their cognitive, emotional and environmental processes. These dimensions were instantiated through such means as experience, activity, diversity and intellectual capital. Following the data analysis of data constructed from a popular competitive crowdsourcing site, a creative's prior experience and activity level lead to increase innovation tendencies. The outcome of these innovative behaviors is realized through the number of winning bids a creative submits on the platform. Furthermore, the results showed that a creative's background as regards their diversity or skills sets does not necessarily results in being innovative and thus could not lead to successful participation in competitive crowdsourcing.

V. CONCLUSION AND FUTURE RESEARCH DIRECTIONS

Cognitive style of creatives' reflects in their behavioral changes as they make strategic moves in their creativity, problem-solving, and decision-making to be successful in the intermediary crowdsourcing market [9]. Kirton's Adaption-Innovation (KAI) Theory describes deep-seated differences in styles of creativity, decision making, and problem solving that appear to be relevant to entrepreneurship. Previous studies suggest that entrepreneurs should score higher on the Kirtnon Adaption-Innovation Inventory than non-entrepreneurs.

The paper contributes to a better understanding of who the high performers in intermediary crowdsourcing are by investigating the innovation/adaption behaviors individuals in a competitive environment that involve individuals with diverse background and skills set. A cross sectional data set from popular crowdsourcing site is used to validate the study's model. The empirical findings reveal that tenure (experience) and activity level can lead to high cumulated number of wins for a creative. However, the background of individuals did not seem to influence the ability of that individual to be innovative and subsequent win. This model explains about 54% of the variation in the cumulated number of wins for a creative.

This study contributes to the growing literature on crowdsourcing that emphasis the importance of active member acquisition (Fuster Morell 2010; Huberman et al. 2009). The study extends the use of adaptor-innovator theory as a lens to understand creative participation in crowdsourcing. Also, the study empirically examined and re-enforced the importance of activity level and experience in electronic markets success. Last but least, the study highlight key features of digitally-enabled labor exchange (crowdsourcing) as unbounded by place and skills which is the essence of taking need expert labor from the organization to the crowd. Hence, the failure to find support for diversity and skills although surprising should not be entirely strange due to the complex nature of this new form labor exchange. Operators of crowdsourcing platforms should consider promoting the cognitive styles/abilities of their participants by providing opportunity for unsuccessful participants to learn or improve their reputation. This will require the operator to implement mechanism that able to better assign participants to tasks they have the needed skills [9]. Promotion of such mechanisms could lead to the development a mix of creatives' with winning cognitive styles and help avoid underutilization of their innovative abilities.

The results of the study should be interpreted with caution dues to limitations in its execution. First, the study assumes that innovation outcomes only manifest in winning a bid. This not entirely true, as creatives in crowdsourcing still get rewarded by way of reputation even if the win a competition. When creatives submit bids, their submission is rated by the buyer and this is incorporated in the overall analysis of their performance in crowdsource. It is therefore possible for a creative to demonstrate innovation through reputation enhancement. However, this does not entirely invalidate the results of this study as the goal of most creatives in crowdsourcing competition is to win and be rewarded monetarily.

Additionally, the study uses language as a surrogate for diversity but it is possible to be multilingual but be environmentally narrowed minded. For instance, an individual could learn to speak a foreign language without actually understanding the culture of the language. This could lead such individual to not incorporate the buyers' background in the design of

their submission.

Finally, the study relied on self-disclosed skills set which might not truly reflect a creative's ability. Most people at the time of creating user profiles online tend not to fully disclose their identity until they develop trust in the market. As observed in the creative selection criteria, most creative were left out of the study.

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Biography

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