



The impact of locus of control on innovativeness

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Abstract

This study aims to investigate the Locus of Control (LOC) and the role it has on individuals in becoming entrepreneurs or employees and if the LOC has an effect on entrepreneurs' and employees' innovativeness. The population of the study is composed of two groups: entrepreneurs and employees. Convenient sampling was used to survey the entrepreneurs and employees in Jordan. One-way ANOVA and simple regression were used to test the hypotheses. It was found that the LOC impacts innovativeness. However, LOC doesn't differ due to demographic factors. The results showed that internal LOC will likely increase the chances of an individual living in Jordan to become an entrepreneur. Increasing the levels of an internal LOC will increase innovativeness levels in an individual. While the majority of employees were found to have an external LOC and low innovativeness, the employees who were found to have an internal LOC were high in innovativeness. This study recommended that organizations could attempt to increase employees' internal LOC levels in an attempt to increase their innovativeness and to increase the likelihood of becoming an entrepreneur. Since the majority of entrepreneurs had an internal LOC, educators must reinforce the role of an internal LOC in entrepreneurs.

Keywords: Innovativeness; Entrepreneurship; Entrepreneurs; Locus of Control

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1. Introduction

Locus of Control (LOC) is about how ones believe they have control or power over the events occurring in their lives (Rotter, 1966). According to (Holt et al., 2001), LOC is a behavioral predictor. The study by Rotter (1966) has classified LOC into two levels: internal and external. Graffeo and Silvestri (2006) explained that individuals with internal LOC accredit his ability to control events to some characters which stems from one's self as emotions and actions. Conversely, an individual with external LOC credits control to factors which stems from external factors outside one's self such as environment (Graffeo and Silvestri, 2006). Entrepreneurial team effectiveness and efficiency have a direct relation with internal LOC and an inverse relation with a diversity of low LOC (Khan et al., 2014).

Individuals who seek entrepreneurial careers are high in achievement motivation, take moderate risks, have more inclination and ability to innovate and have internal (rather than external) locus of control (Carland et al., 1984). Innovativeness is defined as observing and to take an advantage of the new way of doing a business (Kebaili et al., 2015).

This study contributes to the literature of entrepreneurs' and employees' LOC and their innovativeness by providing a clear vision of the relationship between LOC and innovativeness for entrepreneurs and employees. In fact, a similar study has been conducted among pharmacists in Nigeria; this study carried out by Inegbenebor (2007) had found that pharmacists who had an internal LOC had higher chances to become entrepreneurs rather than becoming employees. The crucial point of entrepreneurship is innovativeness and is considered as one of the most important entrepreneurial characteristic (Schumpeter, 1934). This study investigated the impact of LOC on innovativeness. This study explored the differences between entrepreneurs and employees in terms of their LOC and innovativeness.

LOC has been studied in relation to entrepreneurs. Yet, none of the studies were made in Jordan, according to the researcher's best knowledge. Many people think entrepreneurs are born entrepreneurs; people have failed to notice, however, the role of LOC in their career life. This study seeks to answer the following questions: What is the impact of LOC of entrepreneurs on innovativeness? And what is the impact of LOC of employees on innovativeness?

The objective of this study is to investigate the impact of LOC of entrepreneurs and employees on innovativeness. And the Hypotheses are:

- HO1: There is no statistically significant impact of the LOC of entrepreneurs on innovativeness at the level of $\alpha \leq 5\%$.
- HO2: There is no statistically significant impact of the LOC of employees on innovativeness at the level of $\alpha \leq 5\%$.

2. Literature review

According to Heinonen and Poikkijoki (2006) entrepreneurship is a process which is divided into four steps: (1) beginning to start a business, (2) looking for the opportunity, (3) exploit this opportunity by evaluating

risk and other factors, (4) the success of the exploitation of this opportunity. The core of entrepreneurship process is the word "opportunity" and the individual who fuels it is called an "entrepreneur".

Discovery and exploitation of profitable opportunities are what distinguishes entrepreneurship (Shane & Venkataraman, 2000). Other researchers have distinguished between small business and entrepreneurial business. They have defined a small business as any business that has a separate ownership, operated by one, not dominant in its industry, and does not seek innovative ways to accomplish activities. On the other hand, they have defined entrepreneurial business as "one that engages in at least one of Schumpeter's four categories of behavior: that is, the principal goals of an entrepreneurial venture are profitability and growth and the business is characterized by innovative strategic practices" (Carland et al., 1984).

In the United States, an indicator of the outstanding quality of performance is the companies who are founded by alumni and faculty of business schools (Lu'thje and Franke, 2003). The impact of universities on company creation can be observed in the USA as well as in European regions (Harhoff, 1999). We need entrepreneurial education to fuel the entrepreneurial spirit in the new generations.

According to Rugtvedt (2006), entrepreneurship education is an ongoing learning process that promotes the development of personal qualities and skills to support and help the learner to survive in business. Yet only 17 universities in the Middle East and North Africa region have facilities for entrepreneurship and just 5 of those offer a major in entrepreneurship (WEF, 2011). In Jordan, the educational sector plan in 2003 was reformed in a way to advance the entrepreneurial life skills and mindsets such as innovation, initiative, problem-solving, and critical thinking (Masri, 2010).

Entrepreneurs are not limited to a certain age group or to a certain education qualification, yet there are many characteristics that entrepreneurs share among each other. In the Middle East and North Africa region, skilled and higher educated entrepreneurs have more chances in exploiting market opportunities (Bastian & Zali, 2016). The environment surrounding the entrepreneur has a role in forming the entrepreneur. The support of the family has a major impact on entrepreneurs (Sandhu et al., 2011).

Fresh university graduates who are among the age group 25 to 34 years have a high tendency toward starting a new business (Liñán et al., 2011). A survey was given to English students which indicated that 25 percent of them had a business idea, and 41 percent indicated that they prefer to be self-employed (Lu'thje and Franke, 2003).

2.1. Locus of Control (LOC)

Locus of control (LOC) is about how one's believes they have control or power over the events occurring in their lives (Rotter, 1966). LOC empowers entrepreneurs and is considered as a powerful tool to lower levels of stress (Benzing et al., 2009). High levels of stress can affect decision-making process in a negative way. Individuals who seek entrepreneurial careers are high in achievement motivation, take moderate risks, have more inclination and ability to innovate and have internal (rather than external) LOC (Carland et al., 1984).

A study by Brockhaus (1980) showed that successful entrepreneurs differ from unsuccessful entrepreneurs by their internal LOC beliefs where the last had less internal LOC than successful ones had.

According to Rotter (1966), "LOC of reinforcement concerns the degree to which an individual perceives reinforcement to be under his/her control (internal LOC) or under the control of chance, luck, fate, or powerful others (external LOC)" (Rotter, 1966).

In Turkey, entrepreneurs believe they can influence their own business success (Benzing et al., 2009). As mentioned earlier in a study by Rotter (1966), he has classified LOC into two levels: internal and external. LOC can predict the personality behavior (Holt et al., 2001).

Another study distinguished between internal and external LOC in which scholars emphasize how important it is to investigate the personality traits which have a relationship with the entrepreneurial tasks (Baum & Locke, 2004). One of those traits is the internal LOC. It has been proven that internal LOC increases motivation and is linked to success (Raucha & Fresea, 2007).

It was found that the higher the internal LOC, the greater the job motivation and overall job satisfaction (Thomas et al., 2001). A study by Ping (2003) found that the college students who are confident academically, socially, and physically had an internal LOC. In an updated study, Ping (2007) reported the impact of LOC on confidence levels of college students which found that there is a significance impact.

A study conducted in Austria to understand the entrepreneurial team dynamics emphasized the importance of LOC's effect on trust (Khan et al., 2014). The study explored how internal LOC of an entrepreneurial team impacts team performance (effectiveness and efficiency). The results indicated that high internal LOC at the team level is associated with effectiveness and efficiency. However, when the LOC diversity in teams is low the team is more effective while having a high internal LOC (Khan et al., 2014).

A study done by Kroeck et al. (2010) was made to understand entrepreneurship and the differences in LOC. The findings showed differences in the LOC among those who are nascent entrepreneurs and non-entrepreneurs.

A study by (Hay et al., 1990) developed a model of entrepreneurial stages in which it produces entrepreneurs with LOC. The model divided the stages into two; evolutionary and revolutionary. It also distinguished between those who are entrepreneurs with internal LOC and those who are with external LOC, and then it measured the entrepreneurial business success. The model was tested in the United States. The data was collected from 378 entrepreneurs via in-depth interview, a questionnaire, and the Rotter's scale. It was found that the number of entrepreneurs who have internal LOC is more than those who have external LOC. Those who have external LOC were found to be better educated, younger, and have a fewer number of children than those who have internal LOC. Those who have internal LOC have been working for longer work hours and tend to have an entrepreneurial business compared to those who have an external LOC.

A research done on women entrepreneurs found that age has a direct relationship with LOC, and LOC has a direct relation with success rate (Ganesan et al., 2003). In a different study by Bruk-Lee et al (2009) found that LOC across different cultures is positively affected by job satisfaction. This implies that external environment has a role in influencing what kind of message they are sending to the society. Job satisfaction is linked to LOC (Judge and Bono, 2001).

Another study which was done in China by Chen et al. (2016) investigated the role of the Big Five personality traits: extraversion, agreeableness, openness, conscientiousness, and neuroticism and LOC in predicting the economic confidence which refers to people's hopefulness about their own economic future. The survey included Rotter's Scale to measure LOC. It was concluded that participants with a stronger external LOC tended to have greater economic confidence. These individuals tended to be more optimistic about the economic future of China than did those with an internal LOC. The author suggested that this relationship could be a reflection of the media conveyed messages to the Chinese migrant workers in such a way that the external environment is sending a positive information via media. However, the case might be different for other cultures (Goodrich, 2014).

A model was created by Schjoedt and Shaver (2012) to measure LOC. LOC can be measured using a multidimensional scale. Unfortunately, this scale is considered to be inefficient. Thus, the study constructed a unidimensional LOC scale using the sample of nascent entrepreneurs. In a different study, brain dominance which was measured by the Herrmann Brain Dominance Instrument is a model which explains the process of how the individual analyze information which might result in different thinking preferences, behaviors, and career path (Herrmann, 1996). Through a survey done on 69 Swiss entrepreneurs and 79 Swiss managers, Buergin (1998) was able to determine the relationship between brain dominance and levels of LOC. The IPC scale was used to measure the Levels of LOC. The findings showed no significant correlations between the brain dominance and LOC for the entrepreneurial group. In contrast, there was a significant correlation between brain dominance and LOC for the Swiss manager group.

A model by Lumpkin and Dess (1996) suggests that entrepreneurial orientation is composed of five dimensions: autonomy, innovativeness, risk taking, pro-activeness, and competitive aggressiveness. A study conducted by Mishra (2014) to study the impact of LOC on entrepreneurial orientation in India where a sample of 350 students was given a survey which contains Rotter's scale. The results showed that there is a significant relation between internal LOC and entrepreneurial orientation.

2.2. Innovativeness

A number of psychological characteristics of an entrepreneur were discussed by Koh (1996) such as the need for achievement, LOC, propensity to take the risk, tolerance of ambiguity, self-confidence, and innovation. Those characteristics distinguish between the entrepreneurs and the non-entrepreneurs. Innovativeness was significantly associated with the entrepreneurial inclination (Koh, 1996).

Innovativeness is defined as observing and to take an advantage of the new way of doing a business (Kebaili et al. , 2015). The employee innovativeness can be stimulated by their leaders (Jong & Hartog, 2007). That is why it is important for the leaders to understand the ways which will help their employees stimulate their innovativeness.

A study was done by Jung et al. (2003) showed how different leadership styles will have both direct and indirect effect on the firm's innovation. Understanding the most efficient leadership style will direct the firm to choose the most optimal style which will enhance the innovativeness of its employees. Innovation has a positive relation with growth and profitability of firms (Matzler et al., 2008).

The innovation process was impacted by learning experience (Aslan, et al., 2016). In order to develop innovativeness, it is advised to create an innovation model which is specific to the country where the firm operates in (Aslan et al., 2016). In a study by Ndubisi and Agarwal (2014), the research supported the idea that there is a significance relationship between risk taking and three different types of innovation such as process, product, and administrative. Firms need to encourage employees to be more innovative. According to a study by Knox (2002), in order to attain a superior customer value, the firm needs to implement innovation and innovative thinking in their decision-making process. Similarly, educational organizations should encourage students towards innovation.

A research by Rabee (2014) investigated the possibility of applying new innovations in the educational organizations in Jordan. The results showed that in the long run, the innovation process can be successful along with management of human resources. There is a direct relationship between the levels of compatibility of an innovation with the social system within an organization and the probability of the adoption of the human resource information system within that organization (Obeidat, 2013).

The Arab region spends minimal amounts on research and development (Osman & Nour, 2014). In a study by Tabak, Erkus, and Meydan (2010), it was found that the LOC and innovativeness had no direct relationship between each other, yet LOC affected innovativeness by tolerance for risk taking. Another study by Mueller and Thomas (2001) indicated that internal LOC and innovativeness don't have to be fixed over time and supported the statement "entrepreneurs are made, not born".

3. Methodology

This study examined 113 entrepreneurs and 113 employees. Entrepreneurs and employees were surveyed using two scales: one to measure LOC and one to measure innovativeness. The respondents submitted the survey anonymously. Demographic factors were collected from both entrepreneurs and employees. Data from the surveys were statistically analyzed using regression to detect whether LOC impacts innovativeness. The reliability of the data was tested using Cronbach's alpha.

Convenience sampling based on personal connections of the researchers and the entrepreneurs themselves was used to collect the largest amount of data possible within the time and place limits of this study. The sample size was limited to 250 entrepreneurs and employees' responses. Entrepreneurs and employees were randomly chosen across different industrial sectors and positions within the organizations they worked at. This study used regression analysis to analyze the data. The total number of respondents as indicated earlier was 250. Since the total number of employees exceeded the total number of entrepreneurs, only 226 were statistically analyzed.

Innovativeness is a measure of a person's innovation level, Innovation as being creative, confident in trying new technologies, seeking new ways to solve problems, detecting new opportunities and being able to generate new ideas. The innovativeness variable was taken from Rathna and Vijaya (2009) and Mueller and Thomas (2001)

The reliability test for the two samples was taken for all variables, then for each variable solely. The validity of the survey was examined by seven faculty members from PSUT business department, their comments and recommendation into account, the survey was modified accordingly. The reliability of all variables used in this study was tested and found to be 0.71. This indicated that there is a consistency for all the variables included in the test for this sample.

The researchers discussed the means of the two computed variables, The LOC variable was measured by its mean. The innovativeness variable was measured using a formula. The scoring was computed using SPSS as follow:

LOC (Rotter, 1966): Rotter scale included 29 questions. However, only 23 questions were included in the calculation. Each question had two statements. One statement represented internal LOC and the second represented external LOC in no order. The statement which represented the external LOC was given one value and the statement which represented internal LOC was given zero value. Those with mark 9 or above had external LOC and those with marks less than 9 had internal LOC.

Innovativeness (Hurt et al., 1977):

Step 1: Scores were added to the questions 4, 6, 7, 10, 13, 15, 17, and 20.

Step 2: Scores were added to the questions 1, 2, 3, 5, 8, 9, 11, 12, 14, 16, 18, and 19.

Step 3: The final score was calculated using this formula:

$$II = 42 + \text{total score for Step 2} - \text{total score for Step 1.}$$

Scores classification: Scores above 80 are classified as Innovators. Innovators are daring, always excited to try to develop ideas, and have a desire for risky ideas (Rogers, 2003). Scores between 69 and 80 are classified as Early Adopters. Early adopters: They are quick to make connections between clever innovations and their personal needs (Robinson, 2009). Scores between 57 and 68 are classified as Early Majority. Early majorities are realists, comfortable with moderately progressive ideas, but won't act without solid proof of benefits (Robinson, 2009). Scores between 46 and 56 are classified as Late Majority. Late majority: They are conservative pragmatists who hate risk and are uncomfortable to try a new idea. They are often influenced by the fears and opinions of laggards (Robinson, 2009). Scores below 46 are classified as Laggards. Laggards adopt innovation last, they are traditional lovers and always suspicious of innovation (Rogers, 2003). In general, people who score above 68 and considered highly innovative, and people who score below 64 are considered low in innovativeness.

Mean of All Variables: The entrepreneurs' LOC was 8.22 which is lower than 9. This indicated an internal LOC for the majority of entrepreneurs. The entrepreneurs' innovativeness was 75.81% which indicated that the majority of entrepreneurs fell in the early adopters' category. The employees LOC was 11.58 which is higher than 9. This indicated an external LOC for the majority of employees. The employees' innovativeness was 66.38% which indicated that the majority of employees fell in the early majority category.

LOC Distribution among Groups: The LOC of entrepreneurs, 64.6% of entrepreneurs had an internal LOC. The rest 35.4% had external LOC. in the case of employees, only 26.5% had internal LOC. The majority had 73.5% external LOC.

Classification of Innovativeness: The majority of entrepreneurs 80.5% were classified as innovators and early adopters. The rest fell into early majority 16.8% and late majority 2.7%. In contrast to employees, it was found that only 6.2% were classified as innovators and 32.7% as early adopters. The majority of employees fell into early majority 44.2% and later majority 16.8%. No laggards were found.

Innovativeness Levels: It was found that 84.1% of entrepreneurs had high innovativeness levels. The rest with 12.4% had low innovativeness levels. The missing values due that the value fell in out of the range division was 3.5%. For employees' sample, there is an equal percentage 45.1% of high and low innovativeness levels. The missing values due that the value fell in out of the range division was 9.7%.

LOC and Innovativeness: 62.4% of entrepreneurs who had internal LOC had high innovativeness levels, 2.8% of entrepreneurs who had internal LOC had low innovativeness levels, 24.8% of entrepreneurs who had external LOC had high innovativeness levels, 10.1% of entrepreneurs who had external LOC had low innovativeness levels, and 3.5% of entrepreneurs were missing.

18.6% of employees who had internal LOC had high innovativeness levels, 8.8% of employees who had internal LOC had low innovativeness levels, 31.4% of employees who had external LOC had high innovativeness levels, 41.2% of employees who had external LOC had low innovativeness levels, and 9.7% of employees were missing.

4. Analysis

4.1. H01: There is no statistical significant impact of the LOC of entrepreneurs on innovativeness at level of $\alpha \leq 5\%$

R Square equals to 0.139. It means that only 13.9% of variation is explained by this model. The correlation between LOC and innovativeness in entrepreneurs is equal to 37.2%. Standardized coefficients used for comparing the effects of independent variables Beta for entrepreneurs' LOC: -0.372. Compared Sig. with alpha 0.05, entrepreneurs' LOC p-value= 0.000 <0.05. the P-value= 0.000 for entrepreneurs which is less than 0.05. Since the number of significance is less than 0.05 then H_{03} is rejected.

There is a significance impact of entrepreneurs' innovativeness on their LOC.

4.2. H02: There is no statistical significant impact of the LOC of employees on innovativeness at level of $\alpha \leq 5\%$.

R Square, equals to 0.127. It means that only 12.7% of variation is explained by this model. The correlation between LOC and innovativeness in employees is equal to 35.6%. Standardized coefficients used for comparing the effects of independent variables. Beta for employees' LOC: -0.356. Compared Sig. with alpha 0.05, employees' LOC p-value= 0.000 <0.05. The P-value= 0.000 for employees which is less than 0.05. Since the number of significance is less than 0.05 then H_{04} is rejected. There is a significance impact of employees' LOC on their innovativeness.

5. Results and discussion

The hypotheses were tested using the data from the survey completed by 250 respondents. The final sample consisted of 113 entrepreneurs and 113 employees.

The entrepreneurs LOC was found to be 8.22 which is lower than 9. This indicates an internal LOC for the majority of entrepreneurs. This goes in line with the result of a study by (Richard et al., 1990) where it was found that the number of entrepreneurs who had an internal LOC is more than those who had an external LOC. Another study by Inegbenebor (2007) found that entrepreneurs' pharmacists experienced an internal LOC. The employees LOC was 11.58 which is higher than 9. This indicates an external LOC for the majority of employees. This goes in line with a study by Inegbenebor (2007) where it was found that employees' pharmacists experienced external LOC.

The entrepreneurs' innovativeness was 75.81% which indicates that the majority of entrepreneurs fell in the early adopters' category. This goes in line with a study which found that entrepreneurs are usually more innovative than non-entrepreneurs (Kebaili et al., 2015). The employees' innovativeness was 66.38% which indicates that the majority of employees fell in the early majority category. This goes in line with a study which found that entrepreneurs are usually more innovative than non-entrepreneurs (Kebaili et al., 2015).

In a more detailed view of the LOC of entrepreneurs, 64.6% of entrepreneurs had an internal LOC. The rest 35.4% had external LOC. This goes in line with the result of a study by Richard et al. (1990) where it was found that the number of entrepreneurs who had an internal LOC is more than those who had an external LOC. In the case of employees, only 26.5% had internal LOC. The majority had 73.5% external LOC. This conflict with a study done in India by Sharma and Sharma (2015) where it was found that employees had an internal LOC.

It was found that 84.1% of entrepreneurs had high innovativeness levels. The rest with 12.4% had low innovativeness levels. The missing values due that the value fell in out of the range division was 3.5%. This goes in line with the result of a study by Inegbenebor (2007) which found that internal LOC is associated with innovativeness. This is due that the majority of entrepreneurs were classified as having an internal LOC. Entrepreneurs are usually more innovative than non-entrepreneurs (Kebaili et al., 2015). For employees' sample, it was found that there is an equal percentage of 45.1 of high and low innovativeness levels. The missing values due that the value fell in out of the range division was 9.7%. This goes in line with the result of a study by Inegbenebor (2007) which found that internal LOC is associated with innovativeness. This is due that the majority of employees were classified as having an external LOC. Entrepreneurs are usually more innovative than non-entrepreneurs (Kebaili et al., 2015).

62.4% of entrepreneurs who had internal LOC had high innovativeness levels, 2.8% of entrepreneurs who had internal LOC had low innovativeness levels, 24.8% of entrepreneurs who had external LOC had High innovativeness levels, 10.1% of entrepreneurs who had external LOC had low innovativeness levels and the rest present 3.5% of the missing entrepreneurs. This goes in line with the result of a study by Inegbenebor (2007) which found that internal LOC is associated with innovativeness. This study distinguished between entrepreneur's pharmacists and employees' pharmacists. 18.6% of employees who had internal LOC had

high innovativeness levels, 8.8% of employees who had internal LOC had low innovativeness levels, 31.4% of employees who had external LOC had high innovativeness levels, 41.2% of employees who had external LOC had low innovativeness levels, and the rest present 9.7% of the missing employees. This goes in line with the result of a study by Inegbenebor (2007) which found that internal LOC is associated with innovativeness. This study distinguished between entrepreneur's pharmacists and employees' pharmacists.

There is a significance impact of entrepreneurs' LOC on their innovativeness. This proves the prediction of Lumpkin and Erdogan (1999) to be true who expected a positive relationship to exist between LOC and innovativeness. Furthermore, the researcher found that those entrepreneurs who had an internal LOC had high levels of innovativeness and those who had an external LOC had low levels of innovativeness. According to another study by Mueller and Thomas (2001) which indicated that internal LOC and innovativeness doesn't have to be fixed over time and supported the statement "entrepreneurs are made, not born". There is a significance impact of employees' LOC on their innovativeness. This supports the results of a study done by Mahan (1996) where it was found there is a significance impact of employees' LOC on their innovativeness. Furthermore, the researcher found that those employees who had an internal LOC had high levels of innovativeness and those who had an external LOC had low levels of innovativeness. In a study by Tabak et al. (2010) it was found that the LOC and innovativeness had no direct relationship between each other, yet LOC affected innovativeness by tolerance for risk taking.

6. Conclusion

- Managers in Jordan should stay up to the date on current research and trends in the field of LOC related to entrepreneurship.
- Managers in Jordan must incorporate techniques that contribute to an internal LOC in employees and reinforce internal LOC for their employees. As the high levels of an internal LOC impact innovativeness levels positively.
- Managers in Jordan must develop the skills that able to identify employees with an internal LOC. Being able to identify those with an internal LOC will enable managers to identify innovative and potential entrepreneurs within their company.
- Managers in Jordan should try not to enable an external LOC in the employees working for them. External LOC is associated with low levels of innovativeness.
- Programs train educators on the importance of their personal LOC.
- Educators must learn how to identify the LOC in students.
- Educators need to learn how to change the LOC of their students.
- Programs in which educators train their students must be able to reinforce an internal LOC in the students.
- Universities in Jordan should implement educational, research and resource programs on entrepreneurship related to internal LOC to reinforce it in entrepreneurs.

- Entrepreneurs need to learn how to maintain an internal LOC and increase high levels of an internal LOC.

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