Error mastery orientation and its impact on entrepreneurial learning

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Presented by: Karen Bauch
Matriculation-No.: 3018337
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First Supervisor: Prof. Dr. Benjamin Bader
Second Supervisor: Prof. Dr. Jantie Halberstadt

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(Karen Bauch)

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Abstract

This study contributes to the understanding of entrepreneurial learning. For a successful entrepreneurial learning curve a person needs error mastery orientation. In the present study the presented model shows the influence of error mastery orientation on learning goal orientation and entrepreneurial learning. As well that learning goal orientation mediates the effect of error mastery orientation on entrepreneurial learning. We interviewed 62 entrepreneurs during two measurement waves. As expected, the study´s findings show that error mastery orientation has a positive effect on learning goal orientation. On top of that I found that there is a positive effect of error mastery orientation on entrepreneurial learning.

1. Introduction

Everybody makes an error, like Van Dyck et al. (2010, p. 429) said "TO ERR IS HUMAN". The question is how people see errors, how they deal with them and which mindset they have to learn from an error, will this have an influence on their learning? In this context previous research examined the content of entrepreneurial learning, and how individuals learn in an entrepreneurial way.

Within the last years, more research appeared about entrepreneurial learning which is emphasizing the learning process of entrepreneurship (Deakins 1996), and the learning outcome of an entrepreneur (Cope 2005; Rae 2000). As Cope (2005) holds the opinion that business owners evolve and rise through learning. This reacted to the disappointment of past research which dealt with "who an entrepreneur is" and eliminates the acquirement to evolve, vary and learn (Gartner 1988).

In the literature of instructional psychology interesting contents are found about the "proactive nature of the learner" (Smith, Ford, & Kozlowski, 1997; Ford et al., 1998 p. 218). One of them is the research about the person´s learning or goal orientation and how that affects her or his attitude towards learning. Another content is about the learning strategies which individuals have within their attitude of learning to achieve targets (Ford et al., 1998). As Cope (2005) holds the opinion that "theory building begins by conceptualizing the dynamic nature of entrepreneurial learning, illustrating key temporal *phases* that are central to how and what entrepreneurs learn."

This study aims to help to fill the research gaps by focusing on the influence of error mastery orientation and learning goal orientation on entrepreneurial learning and I propose that there will be a positive effect on entrepreneurial leaning. First, past research examined parameters such as metacognition and emotions, which mediates the effect on entrepreneurial learning (e.g. Keith

and Frese, 2005). I believe that learning goal orientation is also as important as the emotions or metacognition of a person. Second, entrepreneurial learning is involved in how individuals review, react and manage opportunities and ventures (Rae and Carswell, 2000). Third, when people comprise learning from errors and see them as a challenge, when they think about errors and take risks, learning takes place (Heimbeck et al., 2003; Van Dyck et al., 2005).

The purpose of this study is to examine how individual´s error mastery orientation is related to learning goal orientation, and how this is related to entrepreneurial learning.

2. Theory

The outcome of errors can be negative, such as financial loss or safety threats, or positive, such as acquiring new skills or learning new things (Edmondson, 1996, Sitkin, 1996, Van Dyck et al., 2010). How individuals deal with mistakes and the outcome of errors can be important for themselves or their environment (Van Dyck et al. 2010). One of the approaches of error handling is error mastery orientation. Error mastery orientation encloses the positive attitudes of errors, which shows the learning of errors. It comprises the positive adjustment of errors, compensates the requirements and prospects for both avoidance and management of errors (Frese, 1991; Van Dyck et al., 2005; 2010). The research results found that error mastery orientation has great performance in the context of task, team and organizational performance (Edmondson, 1996; Frese 1995; Hofmann and Mark, 2005; Van Dyck et al., 2005; 2010).

Rybowiak et al. (1999) believes that, in general, errors are necessary in work psychology for different reasons. First of all, it is the natural information "that produces stress, accidents, inefficient human-machine interaction, quality and performance problems, and a bad climate" (Rybowiak et al. 1999, p. 528). Hence, various recurrent problems in industry in matters of errors

exist, for example, the casualty of the Three Mile Island or the 1,5-million-dollar perdition from the Leeson's. Secondly, predictors of a company's organizational culture are the approach towards errors and how business owners handle them. Usually business owners of bureaucratically culture seek to avoid errors at all costs. Meanwhile, owners of entrepreneurial culture having a positive approach towards errors and what they can learn from them. Thirdly, business owners need a degree of error mastery orientation if they want to vary the culture of the company or involve the error issue in selecting methods.

In this survey I focus on individual differences in goal orientation (Dweck, 1986) especially on learning goal orientation.

Goal orientation is defined as a psychological construct that describes how people understand and react to performance situations (Brett and VandeWalle, 1999).

There are two categories of possible goals that people pursue in performance situations: performance goal orientation and learning goal orientation. I will focus on the learning goal orientation because this is an interesting context about in how far the personal inner approach to get new skills or to deal with new situations has an influence on entrepreneurial learning. I believe it is just as important as peoples' emotions.

A learning goal orientation means that people want to increase their competence. For these individuals, it is important to acquire new skills and handle new situations (Dweck, 1986; Dweck and Leggett, 1988). They view their own competence as an extendable characteristic which can evolve from performance and know-how, too (Brett and VandeWalle, 1999).

Individuals with a learning goal orientation believe that effort leads to success. Effort is observed as the meaning of one´s activated competence for fulfillment of tasks and developing future task achievement (Brett and VandeWalle 1999).

Dweck and Leggett (1988) and Elliott and Dweck (1988) view the different settings of learning goal orientations as a variable behavior pattern prone to challenges and failure. With a learning goal orientation, people show an adaptive behavior pattern in which they can develop themselves (Brett and VandeWalle 1999; VandeWalle 1997).

In the context of entrepreneurial learning there is no past research which examined the influence between error mastery orientation and learning goal orientation. I believe there is a correlation between error masters orientation and learning goal orientation. First, Brett and VandeWalle et al. (1999) believes that persons with a learning goal orientation focus on themselves to develop further. This could be influenced by the error mastery orientation of a person, such as how he or she thinks about errors. Thereby it can lead to a personal advancement: getting new skills, deepening one´s knowledge, and handling new or similar situations differently. Second, like the studies of Dweck and his colleagues (Dweck and Leggett, 1988; Elliott and Dweck, 1988; Brett and VandeWalle, 1999; VandeWalle, 1997) have shown: an adaptive behavioral pattern can be clearly recognizable, and error mastery orientation has a positive influence on learning goal orientation in general. For example, individuals who think a lot about errors or have a positive attitude towards making errors will be more open to learning and to dealing with new situations. If it came to a negative experience they will adapt suggestions which they can evolve themselves. Or as Brett and VandeWalle (1999) said: "Individuals with a high learning goal orientation pursue an adaptive response pattern in which they persist, escalate effort, engage in solution-oriented self-instruction, and report enjoying the challenge" (p. 864). Therefore, an error mastery orientation should lead to a higher learning goal orientation. From this perspective I came up with the fowling hypotheses:

Hypotheses 1: Error mastery orientation has a positive effect on learning goal orientation.

As already defined the understanding of learning goal orientation I will focus at this point on the understanding of entrepreneurial learning.

In general, learning can be defined as the process of gaining knowledge and / or expertise (Knowles, Holton & Swanson, 1998). In the lecture of entrepreneurial learning, Fang et al. (2010) viewed learning as a process of social correlation which regulated by different factors, such as historical, cultural and social factors (Wang et al., 2014). On the other hand, learning can be understood as the activity of reaction by using knowledge and actions (Rae and Carswell, 2000). Rae and Carswell (2000) view entrepreneurial learning as a construct of how people handle new situations and claim that it is more than only the acquiring of new skills. Cope (2005) believes that the specific process of learning is also important and not only what entrepreneurs ought or do learn during the process of arranging and mastering of entrepreneurial ventures. In other words, it is more the learning in entrepreneurial ways where knowing, acting and making sense are connected (Rae, 2000). For a better understanding of the entrepreneurial activity it is important when and how learning takes place (Wang and Chugh, 2014). Minniti and Bygrave (2001) argue that "entrepreneurship is a process of learning, and a theory of entrepreneurship requires a theory of learning" (p. 7).

In the study about feedback seeking VandeWalle and Cummings (1997) hypothesized that learning goal orientation influenced the theory about one´s accomplishment and faith of a positive performance outcome. VandeWalle and Cummings (1997) proposed that individuals with learning goal orientation have a higher tendency to feedback because he or she can learn from this to change their behavior. They also proposed that individual's assumption about the costs associated with feedback seeking is influenced through learning goal orientation. For example, if the feedback is negative, the costs associated with seeking feedback may change one´s behavior, since the person

fears he or she might be considered as weak and/or influence his or her ego negatively. The given feedback will be useful for showing the following performance of a person (Payne et al., 2007).

It is also supposed that learning goal orientation is positively correlated with performance outcome. Persons with learning goal orientation want to evolve a strong comprehension about performance, so he or she can show what they have learned (Ford et al., 1998). Like Brett and VandeWalle (1999) found that persons with a high learning goal orientation take more part in learning and are able to use the learning outcome better than individuals with a lower learning goal orientation (Choi et al., 2011). Therefore, a learning goal orientation should lead to more learning. With this in mind, I formulate the fowling hypotheses:

Hypotheses 2: Learning goal orientation has a positive effect on learning.

Previous research examined parameters which have a mediating influence on learning. Like the study of Keith and Frese (2005) which identified processes mediating the effect of management training. They proposed that error management training helps to execute emotion control and metacognitive activity that in return leads to learning and performance (Keith and Frese 2005). For example, in the primal phases of knowledge acquisition, where errors and setbacks commonly occur, emotion control is anticipated and arises to be important for learning (Keith and Frese, 2005), because it is "the use of self-regulatory processes to keep performance anxiety and other negative emotional reactions (e.g., worry) at bay during task engagement" (Kanfer, Ackerman and Heggestad, 1996, p. 186). Keith and Frese (2005) view metacognition as powerful in supporting transfer and error management training promote metacognitive activity because "errors prompt learners to stop and think about the causes of the error" (Ivancic and Hesketh, 2000, p. 1968). Then

individuals need to find a solution for the impasse and insert these, as well to check their effectiveness (Ivancic and Hesketh, 2000; Keith and Frese, 2005). To manage new performances on their own, metacognitive activities can be devised of learning strategies (Ford et al., 1998; Keith and Frese, 2005).

Ford et al. (1998) proposed that metacognitive activity is positively correlated to the outcome of learning. They hold the opinion that individuals who control their learning, realize errors in accomplishment, and adapt their learning activities should develop more skills and evolve methods to perform better. In other words, persons with better metacognitive skills learn more actually "because they monitor their progress, determine when they are having problems, and adjust their learning accordingly" (Ford et al., 1998 p 220).

Applying these findings to learning, I suggest that not only the emotion control and metacognitions of a person has an influence on entrepreneurial learning, but also the leverage of one´s learning goal orientation.

I have pointed out my assumptions that entrepreneurial learning goal orientation is influenced by the action of error mastery orientation, as well as that entrepreneurial learning goal orientation influences the outcome of entrepreneurial learning. Due to these two assumed effects, I hypothesize that learning goal orientation mediates the positive effect of error mastery orientation on entrepreneurial learning.

Hypotheses 3: Learning goal orientation mediates the positive effect of error mastery orientation on learning.

3. Method

3.1 Design

With this study I examine the effect of error orientation on entrepreneurial learning and through learning goal orientation. Figure 1 shows the theoretical model I propose.

The design of the data collection was a longitudinal study containing two measurement waves - at the first run (T1) and at the second run two weeks later (T2). We collected data via questionnaires and personal interviews at both measurement waves.

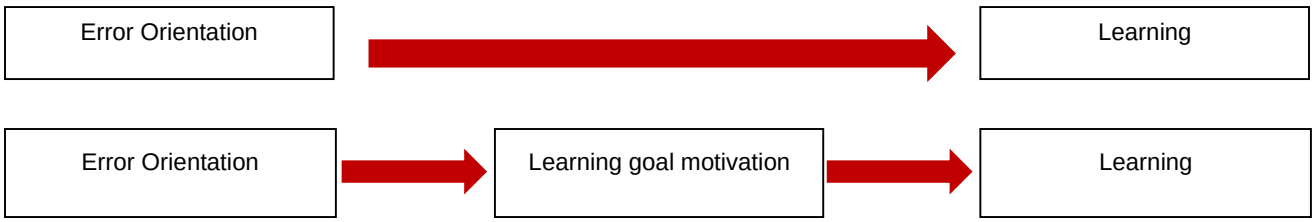

Figure 1

3.2 Procedure

At this longitudinal study we asked the participant to fill out questionnaires and do a personal interview. The entrepreneurs were invited to two different waves. At both waves we did two pen and pencil questionnaire and a personal interview.

To start with the first interview, the entrepreneurs had to fill out the first questionnaire immediately. After that we started with the interview where we asked about the goals which the entrepreneurs have and about the problems they were dealing with since they started managing their own business. At the end of the personal interview we did a little cognitive quiz and during the interview we noted the answers. After the interview, we asked them to fill out the second questionnaire immediately, and collected them right away.

At the second run (T2), the procedure for the interview was the same, the only difference between the first questionnaire at the first run (T1) and the second run (T2) was, that the participants did not have to fill out all the demographical background again. There was a slight difference between the personal interviews (T1 and T2): In T1 we asked about their goals, their biggest problem and current problem, whereas, in the second interview we only included their goals and in addition tried to find out if and what they have learned from the current problem.

In order to have a higher number of participating entrepreneurs, we created incentives: Each participant received a certificate which we handed out directly after the second wave.

3.2 Sample

The participants of this survey were entrepreneurs from Uganda who managed their own business of a minimum of two years doing sales.

In total we interviewed 77 entrepreneurs. From these 77 participants we were able to interview 62 at the second run two weeks later (T2). Out of these participants, the vast majority with almost 64,5 % (n=40) were males and approximately 35,5 % (n=22) participants were female. The age spread from 21 years to 67 years with an average age of 35 years (M=34,72).

3.3 Measures

3.3.1 Error mastery orientation

The participants´ error mastery orientation was the independent variable. We measured error mastery orientation with a 7-point-likert-scale adapted from Rybowiak et al. (1999). The scale contained three subscales and is conceptualized as a multidimensional construct in which a person deals with mistakes and how he or she sees them. We selected the administered subscales

in relevance to the content and context of the task (e.g. “I’d prefer to make mistakes than to do nothing at all.”, “After I have made a mistake, I think about how it came about”, “My mistakes help me to improve my work”). We coded the scale from 1 (“strongly disagree”) to 7 (“strongly agree”). Error mastery orientation was measured on the data from the first run (T1) and from the second run two weeks later (T2). The internal consistency of error mastery orientation was questionable (Cronbach´s Alpha = .70) as well for T2 (Cronbach´s Alpha = .70).
A complete presentation of the three subscales and the items being used in the questionnaire can be found in Appendix 7.1.

3.3.2 Learning goal orientation

To measure learning goal orientation, we adapted the statements from the goal orientation instrument by Brett and VandeWalle (1999). We asked four statements of five asked relevant to the context of the task (e.g. “I can learn a lot from this problem.”, “This problem is a challenging and difficult task where I will learn new skills.”) by using a 7 point-likert-scale ranging from 1 (“strongly disagree”) to 7 (“strongly agree”). We collected data from the second run (T2). The internal consistency of the learning goal orientation scale was questionable for T1 (Cronbach´s Alpha = .68) and acceptable for T2 (Cronbach´s Alpha = .73).

A complete presentation of the scale and the items being used in the questionnaire can be found in Appendix 7.2.

3.3.3 Learning

The variable learning was measured by Cope´s (2005, 2011) entrepreneurial learning task. All entrepreneurial learning items used 7-point-likert-scale with 1 (“strongly disagree”) to 7

(“strongly agree”). This task has four statements about learning outcomes (e.g. “As a result of the problem I learned about my strengths and weaknesses.”, “As a result of the problem I learned how to run and control a business more effectively.”). The data was collected from both waves. The internal consistency of the entrepreneurial learning items was excellent for T1 (Cronbach´s Alpha = .94) and good for T2 (Cronbach´s Alpha = .86).

A complete presentation of the scale and the items being used in the questionnaire can be found in Appendix 7.3.

3.3.4 Control variables

In order to evaluate dependency of other variables on the variable we intended to measure, we included the most important variables in the model like

- Age[1]
- Gender[2]
- Highest degree of formal education[3]

“Age”, “Gender” and “Highest degree of formal education” were measured in the first run (t1). Thus, this variable is based on the data from the first run (t1). We compiled the variable “highest degree of formal education” of ten items like “no degree”, “primary class 1-4”, “primary class 5-7”, “senior class 1-3”, “senior class 4-6”, “certificate”, “diploma”, “bachelor”, “master” or “PhD”, which were to be answered to put a cross and to write down the faculty. The variables “gender” is modelled as a dichotomous variable with 0 representing “female” and 1 representing “male” for

[1] Measured in years
[2] Entrepreneurs either were to put a cross to „female“ or „male“.
[3] Entrepreneurs either were to put a cross to “no degree”, “primary class 1-4”, “primary class 5-7”, “senior class 1-3”, “senior class 4-6”, “certificate”, “diploma”, “bachelor”, “master” or “PhD”. Their also had to write down the kind of faculty of education.

the variable “gender”. Concerning the variable “highest degree of formal education”, we calculated with a dummy variable.

3.4 Method of analyses

To test the mediation of learning goal orientation, Preacher and Hayes (2008) proposed the method of bootstrapping analyses. This method is a resampling procedure which involves repeatedly sampling from the collected data and estimating the indirect effect of the mediator. Estimating this process thousands of times, an estimation of the models distribution is achieved. Hence, confidence intervals for the verified indirect effect of the possible mediator are computed.

4. Results

4.1 Intercorrelations and descriptive statistics

An overview of means, standard deviation and intercorrelations of all variables of this study are shown in Table 1. The main variables of this study were error mastery orientation at T1, learning goal orientation and entrepreneurial learning, both at T1 and T2. Also relevant were the background information, such as gender, age and education, learning all at T1.

Gender correlates negatively significant with the variables learning goal orientation at T1 ($r = -.27$. $p < .05$) and T2 ($r = -.31$, $p < .05$). The learning goal orientation at T1 is positively and high significantly correlated to leaning goal orientation at T2 ($r = .51$, $p < .01$) as well to entrepreneurial learning at T2 ($r = .66$, $p < .01$). Learning goal orientation at T2 is high significant correlated with entrepreneurial learning at T1 ($r = .37$, $p < .01$) and significantly correlated to entrepreneurial learning at T2 ($r = .26$, $p < .05$). Entrepreneurial learning at T2 and entrepreneurial learning at T1 are correlated with $r = .46$ ($p < .01$).

Table 1 Intercorrelations and descriptive statistics of the evaluation variables

Variable	M	SD	1	2	3	4	5	6	7
Gender [1]	.65	.48							
Age	34.72	10.66	-.20						
Education	.53	.50	-.09	-.08					
EMO T1	5.93	.63	-.04	.01	.07				
LGO T1	5.35	1.29	-.27*	.11	-.00	-.09			
LGO T2	5.40	1.20	-.31*	.05	.03	.17	.51**		
EL T1	6.23	1.03	-.21	.06	-.11	-.11	.66**	.37**	
EL T2	6.22	.85	-.01	-.06	-.14	.15	.23	.26*	-.46**

*Note: Sample size n=62; T1 = first interview; T2 = second interview two weeks later; M = mean; SD = standard deviation; [1] 0 = male, 1 = female; * p < .05; ** p < .01*

4.2 Effect of error mastery orientation on learning goal orientation

I first tested my Hypothesis 1 that error mastery orientation hast a positive effect on learning goal orientation. To test this hypothesis, I conducted a linear regression analyses with learning goal orientation at T2 as dependent variable and error mastery orientation at T1 as independent variable. To rule out the potential impact of learning goal orientation at T1, gender, age and education, I include these as covariates.

Presented in Table 2 are the results of the linear regression analyses. I found a marginally significant effect of error mastery orientation at T1 on learning goal orientation at T2 ($\beta = .21$, $p < .10$). Learning goal orientation also showed a highly significant positive relationship between T1 and T2 ($\beta = .48$, $p < .01$). Error mastery orientation at T1 explains 4 % of additional variance in the learning goal orientation at T2 ($p < .10$). The results provide support for the hypothesis 1, that error mastery orientation leads to learning goal orientation.

Table 2 *Linear regression analyses testing the effect of error mastery orientation on learning goal orientation*

Learning goal orientation at T2

	Modell 1			Modell 2		
	Coefficient	SE	β	Coefficient	SE	β
Interception	3.55	.84		1.10	1.57	
Gender	-.48	.30	-.19	-.44	.30	-.17
Age	-.00	.01	-.04	-.00	.01	-.04
Education	.01	.27	.01	-.00	.27	-.00
LGO T1	.43	.11	.46**	.45	.11	.48**
EMO T1				.39	.21	.21†
R^2	.29			.33		
F	5.76**			3.40†		

*Note: Sample size n=63; SE = Standard error; LGO = learning goal orientation; EMO = error mastery orientation; † p<.10; * p<.05; ** p<.01*

4.3 Effect of learning goal orientation on entrepreneurial learning

Table 3 gives an overview about the results of entrepreneurial learning at T2 regressed on the effects of learning goal orientation at T1. It showed the different parameters which has an influence on entrepreneurial learning.

I will look at my second hypothesis which proposes that learning goal orientation has a positive effect on learning. To test my Hypothesis 2, I calculated linear regression analyses. Entrepreneurial Learning at T2 was used as the dependent variable and learning goal orientation at T1 as an independent variable. To guarantee that they would not affect the relationship, I included control variables, such as gender, age, education and entrepreneurial learning at T1.

Model 2 presents the relationship between entrepreneurial learning at T2 and learning goal orientation at T1. For the relevant values I did not find a significant regression. This means that there is no significant effect on entrepreneurial learning independently. At this point I cannot verify and confirm my Hypothesis 2.

Table 3 Linear regression analyses testing the effect of error mastery orientation and learning goal orientation on learning

	Entrepreneurial learning at T2											
	Model 1			Model 2			Model 3			Model 4		
	Coefficient	SE	β	Coefficient	SE	β	Coefficient	SE	β	Coefficient	SE	β
Interception	4.09	.80		4.10	9.39		2.20	1.29		1.69	1.44	
Gender	.11	.22	.06	.09	.23	.053	.15	.22	.08	.14	.22	.08
Age	.06	.01	-.08	-.01	.01	-.08	-.01	.01	-.08	-.01	.01	-.07
Education	-.15	.20	-.09	-.14	.21	-.08	-.16	.20	-.09	-.18	.20	-.11
EL T1	.38	.10	.46**	.43	.13	.52**	.40	.10	.49**	.39	.10	.48**
LGO T1				-.06	.11	-.09				.16	.20	.11
EMO T1							.29	.16	.21†	.22	.18	.16
R^2	.23			.23			.27			.28		
F	4.11**			.30			3.40†			.65		

*Note: Sample size n=63; SE = Standard error; EL = entrepreneurial learning; LGO = learning goal orientation; EMO = error mastery orientation; † p<.10; * p<.05; ** p<.01*

4.4 Learning goal orientation as a mediator

In order to see if the influence of error mastery orientation on entrepreneurial learning at T2 is mediated by learning goal orientation as proposed in Hypothesis 3, I conducted linear regression analyses.

For a closer look I first tested separately if error mastery orientation has an effect on entrepreneurial learning and then simultaneously on learning goal orientation. In general, if the following conditions are concurred, variable b mediates the effect of variable a on variable c: "First, a has an effect on b; second, b has an effect on c; and, third, the effect of a on c disappears when b is held constant" (Keith and Frese, 2005 p. 685). The effect of error mastery orientation on learning goal orientation was marginally significant as shown in Table 2. The second condition was not concurred; this means that learning goal orientation does not have an effect on entrepreneurial learning as I presented in Table 3 Model 2. The third condition, the mediating effect of learning goal orientation was also not concurred. In Table 3 Model 4 the results of the effect on entrepreneurial learning are shown. The dependent variable was entrepreneurial learning at T2 and error mastery orientation and learning goal orientation, both at T1 were the independent variables. Again, I included the covariates gender, age, education and entrepreneurial learning at T1.

In sum, I found a marginally significant effect of error mastery orientation at T1 on entrepreneurial learning at T2, this is shown in Table 3 Model 3. As well entrepreneurial learning at T1 is highly significant. Important for my hypothesis, I did not find a significant effect of learning goal orientation at T1 on entrepreneurial learning at T2. According to this, I cannot confirm Hypothesis 3.

5. Discussion

5.1 Interpretation of Results

The present study intended to show the effect of error mastery orientation on entrepreneurial learning. Furthermore, I hypothesized a positive relationship between error mastery orientation and learning goal orientation, as well as a positive effect of learning goal orientation on entrepreneurial learning. According to this I proposed a mediating effect of learning goal orientation on the relationship between error mastery orientation and entrepreneurial learning.

Previous research has already emphasized the different influence on entrepreneurial learning. For example, Keith and Frese (2005) have already presented that a mediating effect of emotion and metacognitive on entrepreneurial learning persists. To my knowledge, previous research has not examined the mediating effect of learning goal orientation on the relationship between error mastery orientation and entrepreneurial learning.

In order to contribute to previous research, we undertook a longitudinal study presenting how error mastery orientation and learning goal orientation at T1 influenced the correlation on entrepreneurial learning at T2. We conducted this study via questionnaire's and personal interviews with the participants at two measurement waves. Thus, long-time effects could be dictated.

In line with the hypotheses, the results of the study show a marginally positive effect of error mastery orientation on learning goal orientation. This means that individuals with an error mastery orientation, which means that errors are seen as an opportunity to learn and progress, have a positive impact on their learning goal orientation. For example, individuals with a high learning goal orientation view learning from errors as a chance to develop new skills (VandeWalle et al. 1999). On top of that I found a marginally positive effect of error mastery orientation on entrepreneurial learning. This also means that the learning outcome of a person is positively influenced

through the approach of errors which a person has. This may be an interesting context for follow-up studies: which single approach of error mastery orientation has an influence on entrepreneurial learning?

Furthermore, I did not find a significant effect between learning goal orientation and entrepreneurial learning as well there was no mediating effect of learning goal orientation on the relationship between error mastery orientation and entrepreneurial learning.

Nevertheless, I assume that learning goal orientation plays an important role concerning its mediating effect on the relationship between error mastery orientation and entrepreneurial learning. Recent research has presented the significant effects of learning goal orientation on entrepreneurial outcome, such as a higher tendency to feedback (VandeWalle and Cummings, 1997) or getting a strong comprehension about performance (Ford, 1998). VandeWalle and Cummings (1997) believes that learning goal orientation are important because of their connection with behavior patterns of how individuals construe and react to learning situations. This can help to assert "why individuals differentially weigh their cost and value perceptions when deciding to seek feedback" (VandeWalle and Cummings, 1997 p. 392), and that individuals with a high learning goal orientation see feedback as a chance to develop themselves. Individuals who perceive errors, control their learning, and their learning activities should attain more skills and generate better task performance (Ford et al., 1998).

5.2 Strengths and Limitations

Like every study, this study also possesses strengths and limitations. A substantial strength is the design of this study. Because of the longitudinal design with two measurement waves, I could show possible examination of causal correlations. Through the control variables I was able

to contain both their effects on learning goal orientation and entrepreneurial learning, at T2. A simple but actual way to identify a possible mediating effect of learning goal orientation on the positive influence of error mastery orientation on entrepreneurial learning is to check this with a linear regression analyses.

Another strength of this study is the scales of measuring error mastery orientation and learning goal orientation. We adapted the scale of error mastery orientation from Rybowiak et al. (1999) and for learning goal orientation from VandeWalle et al. (1997). Both of them have presented reliability in terms of internal consistency during both measurements waves. Hence, the scales measured the participants error mastery orientation, learning goal orientation and entrepreneurial learning in a precise way.

Although this study presents substantial strengths, it is normal that some limitations exists. One of them is the size of the sample. We only reached 77 participants at the first measurement wave and 62 of them at the second wave (T2) to attend the interviews. I believe that one of the factor is that the duration of two hours per interview deterred the participants from attending the survey. Another factor is that most of the participants we contacted already have attended at other studies recently.

Another limitation of this study is the fact of the context. We performed the interviews and measurements in Kampala, the capital city of Uganda. In terms of entrepreneurship and entrepreneurial exercise, Uganda is one of the foremost countries (Walter et al., 2005) and has an intense affection for the subject matter of entrepreneurship. Therefore, I expect that there will be a positive influence of error mastery orientation on entrepreneurial learning. As a consequence, I cannot be certain if the effects of entrepreneurial learning are the same or even shows a significant effect with entrepreneurs from different countries. As well the results of entrepreneurial learning should

be comparable to other countries with similar error culture. This will be an interesting context for follow-up studies.

The measurement of entrepreneurial learning is an additional limitation of this study. The fact is that this measurement only relies on one source which is the self-rating questionnaire scales which have been filled out by the participants. Researchers are advised to utilize different methods to measure a construct to get a higher validity of the measurements of a study and eliminate method-related bias (Mathison, 1988). Another supposable method may have been to ask the participants about their approach of entrepreneurial learning during the personal interview. However, I advise for a follow-up study to use the same experimental set-up and additionally inquire to ask about the approach of entrepreneurial learning. Hence, the collected data can be conjoined and a more accurate data can be accrued. Given that the measurement scale we utilized for entrepreneurial learning presented high values for Cronbach´s Alpha, it enables a beneficial foundation for follow-up surveys.

5.4 Future Research

As mentioned I found a marginally significant effect of error mastery orientation on entrepreneurial learning, as well as a highly significant correlation between entrepreneurial learning at T1 and T2. It might be an interesting aim of future research to examine the differences of individual's single approach of error mastery orientation in the outcome of entrepreneurial learning and to have a closer look at the correlation on entrepreneurial learning at different measurement waves.

For future research it is important to be aware of the fact that the influence of error mastery orientation and learning goal orientation on entrepreneurial learning might change in context with

other parameters. However, it could be interesting to have a closer look at other possible parameters, such as emotions, metacognitive activities and error aversion and their effects on entrepreneurial learning.

I also propound to conduct the follow-up studies in other developing countries. It would be interesting to see the differences of entrepreneurial learning in and between other countries. As well, the mindset about how entrepreneur's deal with unusual situations or learning something new.

5.5 Implications and Conclusion

The present study shows the positive effect of error mastery orientation on learning goal orientation and entrepreneurial learning. If individuals showed a high error mastery orientation this would have an impact on her or his orientation to learn new skills or dealing with new situations, as well as on the learning outcome. Otherwise, I did not find a positive influence of learning goal orientation on entrepreneurial learning, just as little there was no mediating effect of learning goal orientation on the relationship between error mastery orientation and entrepreneurial learning.

According to the study of Keith and Frese (2005) which hypothesized that emotions control and metacognitive activities influence the learning outcome, I postulate the parameter learning goal orientation. I believe it is not only the emotions or metacognitive activities that have an influence on entrepreneurial learning. It is also the orientation and mindset to learning which a person sustains in themselves. For example, if a person has a high learning goal orientation he or she is more open to learning new things or expanding their knowledge this will have an influence on the learning outcome such like if the feedback is negative, they will see it as a chance to learn new methods or change their behavior.

I contributed towards filling the gap of knowledge on entrepreneurial learning. According to Cope (2005) I believe that "entrepreneurial learning is not characterized by the notions of stability, consistency, or predictability" (p.392). It has more shown the dynamic of entrepreneurial learning (Cope, 2005). As already noted by Greiner (1972), new ways about how to examine the relations between evolutions and revolutions that arise in entrepreneurial learning do exists. In this context, further research should focus on the dynamic of entrepreneurial learning which includes the different possible parameters.

6. Literature

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7. Appendix

7.1 Items for Error Mastery Orientation adapted by Rybowiak et al. (1999)

Error risk taking

rsk1 If one wants to achieve at work, one has to risk making mistakes

rsk2 It is better to take the risk of making mistakes than to `sit on one's behind'

rsk3 To get on with my work, I gladly put up with things that can go wrong

rsk4 I'd prefer to err, than to do nothing at all

Thinking about errors

thk1 After I have made a mistake, I think about how it came about

thk2 I often think: `How could I have prevented this?'

thk3 If something goes wrong at work, I think it over carefully

thk4 After a mistake has happened, I think long and hard about how to correct it

thk5 When a mistake occurs, I analyze it thoroughly

Learning from errors

lrn1 Mistakes assist me to improve my work

lrn2 Mistakes provide useful information for me to carry out my work

lrn3 My mistakes help me to improve my work

lrn4 My mistakes have helped me to improve my work

7.2 Items for Learning Goal Orientation adapted by Brett and VandeWalle (1999)

To what extent do you agree or disagree with the following statements?

	Strongly disagree ▼	Disagree ▼	Somewhat disagree ▼	Neutral ▼	Somewhat agree ▼	Agree ▼	Strongly agree ▼
I can learn a lot from this problem.	( )	( )	( )	( )	( )	( )	( )
This problem is a challenging and difficult task where I will learn new skills.	( )	( )	( )	( )	( )	( )	( )

This problem helps me to develop my work ability.	( )	( )	( )	( )	( )	( )	( )
This problem requires a high level of ability and talent.	( )	( )	( )	( )	( )	( )	( )
This problem is an opportunity to develop new skills and knowledge.	( )	( )	( )	( )	( )	( )	( )

7.3 Items for Entrepreneurial Learning adapted by Cope (2011)

To what extent do you agree or disagree with the following statements?

As a results of the problem…	Strongly disagree ▼	Disagree ▼	Somewhat disagree ▼	Neutral ▼	Somewhat agree ▼	Agree ▼	Strongly agree ▼
… I learned about my strengths and weaknesses.	( )	( )	( )	( )	( )	( )	( )
… I learned about strengths and weaknesses of my business.	( )	( )	( )	( )	( )	( )	( )
… I learned about the nature and management of relationships	( )	( )	( )	( )	( )	( )	( )
… I learned how to run and control a business more effectively.	( )	( )	( )	( )	( )	( )	( )

7.4 Items for Background Variables

Please indicate your sex. ☐ female ☐ male

How old are you (in years)? ☐

What is your highest degree of formal education?

No degree	☐		
Primary class 1-4	☐		
Primary class 5-7	☐		
Senior Class 1-3	☐		
Senior Class 4-6	☐		
Certificate	☐	What faculty?	
Diploma	☐	What faculty?	
Bachelor	☐	What faculty?	
Master	☐	What faculty?	
PhD	☐	What faculty?	